

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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## Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES—No. LIX.\*

BY J. CLAPPE JEFFERSON, A.R.S.M., WIL. SC.,  
Certificated Mining Engineer.(Formerly Student at the Royal Bergakademie, Clausthal).  
(The Author reserves the right of reproduction.)

## SECTION III.

In 1866 Mr. Grafton Jones devised a coal cutting machine on a similar principle to that of Messrs. Firth and Donisthorpe, with several improvements. The great peculiarity of this machine consists in pivoting the pick or tool on a large iron ring, provided on the outside with teeth; this ring or frame carrying the pick is so placed that its axis is in a continuation of the centre line of the piston rod and cylinder, the ring being moveable about this axis, so that the pick, according to the position of this ring, can be swung in a vertical, horizontal, or inclined plane. In an horizontal (its usual) position the pick is used for boring, and in a vertical position for cutting or slitting. The piston rod can turn about its axis so that there is no necessity for unloosening the connection between the piston rod, connecting rod, and short arm of the pick when the position of the latter is altered. The piston rod, however, is very short, a trunk cylinder being used, so that when the blow is being struck the full pressure is acting over the whole area of the piston; during the return, however, the pressure acts only on the annular space between the trunk and the cylinder, and the return stroke is made more gently; the machine is not subjected to shocks, as in the case of Firth's, at the end of the back stroke, besides causing a great economy on account of compressed air used. In the latter machines the valve, which is an ordinary slide valve, is actuated automatically, and so arranged as to have a variable stroke; the machine when beginning afresh at any place, working at the commencement with short quick blows, and afterwards as the undercut becomes deeper the stroke is lengthened, and the rapidity of the blows made proportionately less. In the case when the machine is cutting vertical slots it will be evident that the pick point describes a curve, and in such a manner that the bottom corner of the slit is left in, and must be got at by hand. The machine, which weighs about 12 to 14 cwt., is said to be capable of undercutting in hard coal to a depth of 40 in. at the rate of 13 yards per hour, or from 100 to 110 yards per shift of eight hours, which is about the same as that of Messrs. Firth and Donisthorpe.

**HOLING MACHINES WITH CUTTERS.**—In most coal cutting machines where the power acts direct, without the intervention of gearing upon the cutting tool, a sufficient pressure cannot be obtained by the use of compressed air unless the cylinder is made proportionately large, and consequently the machine heavier and larger than is advisable in the narrow confined space at the working face in a coal seam. Besides this, the elasticity of the compressed air itself gives rise to shocks in the machine, which are disadvantageous to its use in the hands of any but careful workmen. For these reasons many of the machines which have been patented since 1865 are intended to be driven by water power. The machines which have been invented depend essentially on two principles, or, rather, can be classed as slotting machines and wheel cutters.

The coal cutting machine of Messrs. Carrett, Marshall, and Co., of Leeds, is of the first class, and being direct acting is driven by water power. The machine consists of a water cylinder about 5 in. in diameter, and of about 18 in. stroke, the piston is kept water-tight by means of leather packing. The piston rod, which is very thick, carries a very strong bar about 4 ft. long, which is fastened to it by means of a cotter. In consequence of the great thickness of the piston rod the front area of the piston on which the water acts during the return stroke forms only a narrow annular ring, so that by this means less water is used, and during the forward stroke, when a considerable pressure is required, the water is acting at the back of the piston over its whole area. The thick bar attached to the piston rod is formed entirely of steel, the front face being quite flat. Near the end of this bar a cutter is inserted in a square hole and securely fixed; at a distance of about 14 in. from this first cutter a second similar cutter is attached to the bar, and at a distance of 14 in. from this second cutter nearer the machine a third square hole is formed in the bar, which has a third cutter attached to it. The second cutter springs forward somewhat before the first, and the third cutter somewhat before the second, so that the side of the undercut on which the cutters are acting forms as it were three narrow steps. The amount by which the cutters project before each other amounts to between 1 in. and 2 in. The cutters themselves are in the shape of small shovels. The cutters vary  $\frac{1}{2}$  in. in breadth, that at the end of the cutter holder being  $2\frac{1}{2}$  in. broad, the next  $2\frac{1}{2}$  in. broad, and that next to the machine 3 in. broad. The cuttings are scraped out from the holly by a boy with a scraper. The thickness of the slot pared off by the machine at each stroke varies between  $\frac{1}{4}$  in. and  $\frac{3}{4}$  in., so that with 16 strokes per minute an advance of between 4 in. and 1 ft. per minute, or 20 ft. and 20 yards per hour is obtained, or a mean of 106 yards per shift of eight hours, which is about the same as that of Firth's and Jones's machines. The depth of the undercut, however, is slightly greater, being with a stroke of 18 in. ( $18 \div 2.4 = 46$  in.), or allowing 4 in. play for the cutter next the machine before coming into contact with the coal being 3 ft. 6 in. This gradual advance of the machine after each blow, or rather during the return stroke, is performed by the machine itself. A long chain having one end attached to the frame of the machine passes at the other end over a pulley, and back again to the machine, where it passes over a pulley fixed beneath the frame of the machine. This pulley is provided with projectors or pins, which pass through each alternate link of the chain, the pulley being cast to suit. The end of the chain which has passed over the pulley hangs loose. On the same axle is fitted a second pulley or wheel, which is so arranged by means of ratchet teeth and pawl that during the forward motion of the piston rod and cutters the second wheel rotates alone, during the back stroke, however, the pawl catching in the ratchet teeth carries the pulley over which the chain passes partially round, and so advances the machine. By means of a lever the wheels can instantly be disconnected from or put into gear, and in this manner the cut can be repeated in the same position.

In consequence of the great reaction against the machine during the forward stroke, it is necessary to make some arrangement for preventing the machine being pushed out of its position off the rails, and this must be so managed that whilst the machine is firmly fixed in position during the forward stroke the machine is sufficiently loose during the back stroke to be advanced for a fresh cut. For this purpose a second water cylinder is provided, of the same diameter as the first, but placed in a vertical position, so that the piston rod can bear against the roof. The piston rod is very thick, so that only a small amount of water is expended in lowering the piston during the return stroke, when the machine is moved forward, whilst during the forward stroke the whole of the area of the piston is pressed by the water, thus holding the machine firmly down on the rails.

In order to be enabled to hole either in the floor or in a dirt parting at some height above the floor, the frame of the machine is so arranged that it can be raised on screws. The machine has been thoroughly experimented with at the Kippax Colliery, near Leeds, Messrs. Locke and Co., in the Haigh Moor seam, which is about 5 ft. 10 in. thick. The holly took place in a 2-in. dirt parting, about 20 in. from the bottom. The average work of the machine was an advance of 40 ft. per hour (the undercut being 3 ft. deep), which agrees with an advance of  $\frac{1}{4}$  in. per stroke and 16 strokes per minute when the machine was working regularly; in consequence of disturbances and hindrances, however, such as laying the roads, lengthening the pipes, moving the hose and pulley and chain, an advance of 58 yards per eight hours shift only was obtained; this by regular working ought to have been accomplished by the machine.

\* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergmann, Dr. von Gumboldt, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

in 4½ hours, which gives in every shift of 8 hours 4½ hours of regular steady work with the machine and 3½ hours in accessory work. During a continued examination of the machine, extending over 24 shifts, a length of 800 yards was undercut by two men and one boy being employed at the machine, the proportion in the cost by machine and by hand getting being very nearly as 4 to 5, or a saving of 20 per cent. in the cost of getting by machine over that by hand, which still further increased the actual profit on account of the larger quantity of round coal obtained. From the above profit, however, is to be deducted the cost of attendance at the water engines, &c.

The great disadvantage connected with the use of the above machine was the great expenditure of water (15 cubic feet per minute). This is a disadvantage which in the case of a deep mine, and where a great number of machines are at work, would soon be heavily felt, although to a certain extent the amount of water used could be considerably diminished by increasing proportionately the pressure; this, however, in its turn would necessitate stronger and heavier machines. The Mansfeld Copper Mining Company, who have offered a high premium for an effective undercutting machine, have tried the above, but with comparatively unsatisfactory results, great annoyance, it is said, having been experienced, owing to the cutter holder becoming wedged or jammed amongst the loosened slate.

During actual working the cutter holder moves backwards and forwards in a position at right angles to the machine. As such a position would be extremely inconvenient whenever it was required to move the machine from one position to another, the cylinder driving the cutters is pivoted in such a manner that (when the machine is not working) by means of a quadrant with teeth, and a small worm wheel, the cylinder or cutter holder can be rotated into a position lengthways beneath the frame, and held safely in this position by means of a strong iron collar. The quadrant allows of the working cylinder and cutter holder being held in any position in a horizontal plane. The necessity of a vertical cylinder to fix the machine securely down on the rails appears the greatest drawback in the construction.

On the same principle as the above is the machine of Rothery. In this the cutter holder is attached directly to a piston rod, which passes through two cylinders, the one considerably larger than the other, the larger one being that next to the cutter holder. During the forward stroke, when the cutters are acting on the face of the coal, the tool is pressed forward by the pressure on the piston in the large cylinder, the return stroke being effected by the piston in the smaller cylinder.

The above and all other machines, which work like an ordinary slotting machine, have the disadvantage that the time during the return stroke is lost, and besides, in consequence of the liability of the machine to be overturned, it must be clamped fast during the cutting stroke, and released during the return stroke, or rather just at the end of the return stroke when the cutter is clear from the coal, so as to admit at this instant of an advance of the machine for the next cut; this clamping and releasing, which must be repeated with every stroke, appears the most defective part in these machines, although the former disadvantage appears to have taken most of the attention of inventors, who have got over the disadvantage of a return stroke by using a wheel, to which the cutters are attached. Moreover, all these machines which work direct from a cylinder on to the cutting tool require to be worked by water-power rather than by compressed air, the disadvantages attending an extensive use of water-power we have just mentioned. Many of the machines with wheel cutters appear to have been designed at the same time—i.e., about the year 1869.

The first of these which we shall consider is that of Messrs. Gillott and Copley, of Barnsley, which was invented in August, 1868. The frame of the machine is of wrought-iron, being about 5 ft. 6 in. long by 2 ft. 6 in. broad. On this frame are fixed two cylinders of  $7\frac{1}{2}$  in. in diameter, and about 9-in. stroke, and at the opposite end of the frame is placed a crank-shaft driven from these two cylinders. A small pinion on the crank-shaft drives a larger one on a shaft placed beneath the frame of the machine; this second shaft carries at its other end a smaller pinion, which gears into a circular rack on a large horizontal wheel carrying the cutters. The spaces between the teeth of the rack are really hollow slots, so that any dirt or coal can fall through without wedging the machine fast. Four strong brackets support a horizontal plate which carries the axle of the large cutting wheel. The wheel which is 3 ft. 10 in. in diameter, and carries on its periphery 20 cutters, makes about six revolutions per minute, and gives a clear undercut of  $2\frac{1}{2}$  in. to 3 in. in height to a depth of 3 ft. 4 in. The rotation of the cutter sweeps the cuttings out from the undercut, so that only one man is required to attend to the machine, whilst a second follows to sprag up the coal as it is undercut. When it is required to remove the machine the large cutter wheel is loosened and taken off, and the machine and wheel carried separately to their fresh destination. The gradual advance of the machine is effected by means of a small wire-rope fixed to a bridle, passing round a snatch block fixed at the far end of the face and on to a drum at the front end of the machine, which is actuated by a ratchet wheel and lever worked by an adjustable crank, so that the rate of advance of the machine can be altered at pleasure to suit the character of the holly. Bent bridges or straps are attached to the frame of the machine on which a sheet-iron casing fits so as to protect the machine from anything falling upon it. The machine weighs about 15 cwt.

At the Wharfedale Silkstone Colliery the machine undercut to a depth of 3 ft. 3 in., and with a height of undercut of 3 in. a length of 26 yards per hour. The machine is worked by compressed air, the steam cylinder is  $9\frac{1}{2}$  in. in diameter, and the compressed air cylinder 10 in. in diameter, the pressure of the air is about 50 lbs. to the square inch. With a pressure of 27 lbs. per square inch the machine is said to have holed a length of 40 yards per hour in a clay parting, and with only 20 lbs. pressure a length of 25 yards per hour in hard coal. As an average performance with a pressure of 27 lbs. per square inch a length of 30 yards per hour undercut to a depth of 40 in., and with a height of undercut of 3 in. is given. An average extending over five shifts gave a length of 500 yards, or 100 yards per shift, which is about the average we have seen with other machines. At the Whitebank Colliery, near Chesterfield, a length of 70 yards is said to have been undercut in 77 minutes.

## GEOLOGICAL SOCIETY OF LONDON.

Jan. 9.—Prof. P. MARTIN DUNCAN, M.B., F.R.S. (President), in the chair.

Ephraim Brunt, Haydock-place, Hanley, Staffordshire; T. W. Cowan, Horsham, Sussex; and Henry Fox, Clarendon-road, Kensington, were elected Fellows of the Society.—James Adey Birds, B.A., Gloucester-terrace, Hyde Park; Rev. George E. Comerford-Casey, M.A., Cromwell-street, Nottingham; Lieut.-Col. H. H. Godwin-Austen, Shalford House, near Guildford; Sir Willoughby Jones, Bart., Cranmer Hall, Fakenham, Norfolk; and H. Richard Ladell, M.A., London International College, Isleworth, were proposed as Fellows of the Society.—John Eanson, C.E., St. Giles-street, Northampton; R. C. Foster, East View, Glandore, Co. Cork, Ireland; Walter Mawer, Great Grimby; R. H. Solly, Purbright, Christchurch; and the Rev. Arthur Watts, Belvedere House, Durham, will be ballotted for as Fellows of the Society.

The following communications were read:—

1.—“On the Great Flat Lode south of Redruth and Camborne.” By Dr. C. LE NEVE FOSTER, B.A., F.G.S.

The author described the mode of occurrence of the stanniferous deposit known as the Great Flat Lode, the mines worked in which extend for a distance of 3½ miles, and furnish about one-eighth of all the tin raised in Cornwall. The mines in question are Wheal Uny, South Carr, West Wheal Raset, Southend, West Wheal Frances, South Condor, and Wheal Grenville; and in all the lode dips at a much less angle than the average of Cornish veins, the dip at Wheal Uny being only about 46° S. Throughout the lode contains a small leader, usually only a few inches wide, occupying the space due to the shifting of the two sides of a fissure, and filled partly mechanically and partly chemically. Above or below, or on both sides of this, there is a mass of stanniferous schorl rock from 4 to 15 ft. wide; this contains from 1 to 3 per cent. of cassiterite, in little grains, or in stringers or veins. Schorl rock, very poor in lead (locally called capel or greyback), separates the lode from the surrounding granite or killas, but passes on one side into the lode, and on the other into the granite or killas, so that no wall is recognizable. From these characters the author inferred that the lode and the capel are merely altered rocks, the fissure now occupied by the leader having served to bring up vapours or solutions which have entirely changed the rocks on both sides of it. In support of his opinion, the author adduced other instances of the change of both granite and

killas into schorl rock; and further stated that, both at South Condor and Wheal Grenville, he has found in the schorl rock cavities as large as a pea, agreeing in form with crystals of orthoclase feldspar.

2.—“On Some Tin Mines in the Parish of Wenion, Cornwall.” By Dr. C. LE NEVE FOSTER, B.A., F.G.S.

The mines described in this paper are called Bimynheer, The Lovell, and South Wenion. In the former the stanniferous deposit consists of a large irregular mass of rock 30 to 50 ft. thick; its dip is N., at an angle of about 30°, and its strike E. 32° N., along which it has been traced for 36 fms. The tiny rock is separated from the granite above by a slide or vein of white stanniferous granite, and mica, about 5 in. thick, but passes insensibly into the granite below. At the Lovell Mine there are two lodes, north and south, the former striking from S 7° to 45° N. of E., and dipping N.W. at an angle of about 70°, the latter running E. 48° N. and dipping N.W. about 60°, so that the two lodes quite in going eastward and in depth. The lode is separated on one or both sides from the adjoining granite by a rock locally known as “gab,” 6 to 12 in. thick, composed of quartz, mica, gibberite, chlorite, iron pyrites, copper pyrites, and a little schorl. The lode itself shows joints which are mere planes of division in the rock, and usually have the same strike and dip; divergent joints also occur, and where these traverse the granite they carry with them a little tiniferous sand. The South Wenion Mine is worked in an irregularly cylindrical pipe of tiny rock, merging gradually on all sides into the granite; the shorter axis of its oval section is about 10 ft., while the longer axis varies from 20 to 60 ft. It dips at an angle of 46° in a direction N. 25° W. The stanniferous rock in these mines is essentially a mixture of quartz, chlorite, gibberite, iron pyrites, and tin ore, with zircon-blende in some cases, and usually some mica; fine needles of tourmaline occur in the cavities which it encloses. In the South Wenion Mine the southern part of the pipe is sometimes very granite-like in appearance, consisting of pink orthoclase crystals embedded in a mass of quartz, chlorite, mica, and iron pyrites, with a little copper pyrites, fluor, and tin ore. One specimen is a true stanniferous granite. These characters lead the author to the same conclusion he has arrived at in the case of the Great Flat Lode—that these tin deposits consist entirely of altered granite, and are not ordinary mineral veins; they have no walls, but the stanniferous rock passes gradually into granite, and they show no signs of banded structure due to the successive deposition of minerals. The highly granitic character of part of the South Wenion tin deposit is strongly confirmatory of this view, which is further supported by the occurrence in the dark mass of the so-called lode at The Lovell, of pseudomorphs of quartz after orthoclase containing a little cassiterite.

3.—“On Some of the Stockworks of Cornwall.” By Dr. C. LE NEVE FOSTER, B.A., F.G.S.

The author commenced by explaining that the term “Stockwork” had been derived from the German *Stöckwerk*, meaning “Storywork,” in allusion to the method of working in steps or storeys in open workings originally adopted for such deposits. The being worked in open workings affords a good opportunity of studying the mode of occurrence of tin, and many of them are interesting on account of the small percentage of tin which will cover all expenses. Thus, in Wheal Prosper the average amount of oxide of tin obtained per ton of stuff is not more than 3 lbs., worth at the present prices of black tin 4½d. per pound, so that the ground as it stands is only worth 13½d. per ton. The mine can be worked without loss on account of the softness of the rock, and the large size of the grains of tin ore, the comparative lightness of the substances associated with it, and the command of water-power.

The deposits worked as stockworks occur in Cornwall in killas, granite, and elvan. The tin ore, associated with quartz and with small quantities of other minerals, is found in more or less parallel thin veins and stringers, dipping at a high angle, and occasionally giving off branches or veining with one another, both dip and strike. In the killas the rock close to the veins is occasionally altered into tourmaline schist; in the granite the walls of the veins, and sometimes the whole mass of granite, are altered into greisen and schorl rock. At Carclaze the orthoclase of the intervening bands of granite has been converted into china clay, which is now the main object of the working. At Carrigan the leader sometimes adheres to the enclosing rock by one side only, the other being bounded by a clay vein which contains broken crystals of cassiterite, indicating, in the author's opinion, the place in which the tin ore was deposited. The appearance of the tin ore. Of the stockworks in elvan the author gave a list, and remarked that the elvan of the Terras Mine is particularly interesting, as it presents a series of cavities filled by the removal of orthoclase, and now being filled up with schorl and a little oxide of tin.

Mr. WARINGTON W. SMYTH said that as many of the principal stockworks have been already described, he would pass over the paper dealing with them and proceed to those treating of the origin of other stanniferous deposits, for which some originality seemed to be claimed by the author. He remarked that it had long been known that although mineral veins often occur between definite walls, sometimes one or both of their walls had been attacked by the same forces concerned in the aggregation of the minerals. It seemed likely that the same forces which brought about the deposition of the tin ore may have also simultaneously altered the neighbouring rocks, and led to the appearance of the elvan and singular minerals, such as those mentioned by the author, namely fluor spar and boracic acid. Minerals have observed that occasionally the capel or cab is more valuable than the leader or lode itself. In some instances the capel may have advanced from the fissure into the rock. In killas bordering on granite much schorl often occurs.

Mr. DREW inquired whether the more irregular masses of minerals do not occur not parallel to the lode, but as if in the lesser branches of fissures?

Prof. BOWSER gave a confirmation of Dr. Le Neve Foster's observations in the structure of the lode of the rock of which the Duke of Wellington's schist is made in St. Paul's Cathedral is made. Some schorl rock, altered granite, others altered killas. He noticed the singular molecular changes in the quartz, schorl, and orthoclase of luxulianite. No doubt acidulated waters, charged with the necessary minerals, altered the granite and formed the veins.

Prof. BEELEY remarked that 25 years ago he had been taught by Mr. Warington Smyth and Prof. Ramsay that the rocks near veins of minerals are often altered. Near fissures, no doubt, the rocks had been subjected to great strains, which lessened the cohesion, and thus favoured the infiltration of waters conveying mineral matters in solution into the rocks beyond the actual fissure.

Mr. SOLLAZ remarked that he had long been puzzled to know what the ordinary theory of mineral veins might be. The facts brought forward this evening supported an idea which some time ago had occurred to himself. The surface of volcanic regions often bears volcanic cones and also mineral springs, the materials of both being brought up through fissures. When denudation removes the surrounding country masses of gabbro and granite bosses are laid bare, and mineral springs appear at the surface. Mineral veins seem to be the roots of mineral springs. We yet want to know more about the solubility of minerals under great pressure and at a very high temperature. Many are probably soluble under such conditions which are not so under the ordinary conditions at the surface; and if this be the case we need have no great difficulty in understanding their solubility and also the alterations in the rocks.

Prof. RAMSAY, referring to Mr. Sol্লা's enquiry as to the common theory of mineral veins, said that long since it used to be taught that the minerals were brought up from below by the agency of vapours; afterwards that the minerals in the lodes and in the altered rocks about them were accumulated by the aggregation of minerals diffused in minute quantities throughout the rocks on either side. He referred to a deposition of copper from aqueous solution in a peat moss in Wales, the solution having proceeded from a distant hill. The peat was worked, and much copper obtained from it; and in consequence of this the hill was bored in many directions in search of a lode of copper ore, but nothing was met with except a few thin strings not worth a farthing. It had been long since shown that in Derbyshire fissures in anticlinals were unproductive, but those in synclinals productive of lead ore, and this was explained by the lead being dissolved by the water falling on the surface, which, travelling along the planes of stratification, conveyed it from the convexities and towards the hollow folds of the beds.

Mr. DE RANCE stated that the mode of occurrence of lodes in Alston Moor was confirmatory of what Prof. Ramsay had just said.

4.—“The Precambrian Rocks of Charnwood Forest.”—Part II.

By the Rev. E. HILL, F.G.S., Fellow and Tutor, and the Rev. T. G. BOWNEY, F.G.S., Fellow and late Tutor of St. John's College, Cambridge.

**GALVANIC BATTERIES.**—Some improvements in single fluid batteries have been invented by Messrs. WATERVILLE and MAXER, of Great Portland-street, in carrying out which they are enabled to dispense with the porous cell in which one of the electrodes is ordinarily placed, and instead they place the two electrodes in one vessel of glazed earthenware or other suitable material, a zinc plate or surface forming the positive electrode, being secured at the lower part of the vessel so as to enable a layer of mercury to be supported upon it in such a manner as to cover this zinc plate and separate or protect it from being acted upon by the exciting fluid employed, which is supported or floats upon the mercury, and in which is placed the carbon or other negative electrode. The two electrodes being connected, a current will be produced, and the battery ready for use. As a depolarising agent they employ such soluble or insoluble salts or substances as are adapted to the purpose, such as chloride of silver, bichromate of potash, or oxide of iron. Instead of employing a plate or other surface of zinc, loose fragments of metallic zinc or metallic zinc in powder mixed with or immersed in mercury, and retained by reticulate plates or other suitable means in their proper position therein, or an amalgam of zinc and mercury, may in some cases be employed as the positive electrode, over which the exciting fluid in which the negative electrode is immersed will be contained in the glazed earthenware or other suitable vessel employed. By this invention great economy, together with certainty and constancy of action, with strength and durability, are attained, as well as facility of use arising from the absence of noxious or deleterious fumes.

The directors of the Midland Railway Carriage and Wagon Company have declared an interim dividend for the past half year at the rate of 10 per cent. per annum on the ordinary shares, and at the rate of 6 per cent. per annum on the preference shares.

The Provincial Tramways Company will pay for the past six months a dividend at the rate of 8½ per cent. per annum.

**HOLLOWAY'S PILLS.**—When indolent weather checks to a considerable extent the natural exhalation of the skin, an alternative is required to expel them entirely from the body through some other channel. Holloway's pills can be confidently recommended as the easiest, surest, and safest means of attaining this desirable end without weakening the most delicate, or incommoding the most feeble. When from frequent chills or impure air the blood becomes foul, and the secretions vitiated, these pills present a ready and efficient means of cleansing the former, and correcting the latter. By this salutary proceeding disease is arrested at its outset, its pains and inconveniences averted, and the nervous structure saved from the depressing effects entailed upon them by an illness.

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## Meetings of Public Companies.

## TECOMA SILVER MINING COMPANY.

At the meeting of shareholders, held at the offices of the company, Palmerston Buildings, on Jan 4 (Mr. ADLEY in the chair), it was resolved to support the directors in their efforts to resume and continue the work at the mine by the issue of preference shares to the extent of 40,000*l.*, in shares of 1*l.* each, being a first charge of 20 per cent. per annum. The latest reports financially and from the mine showed an improved position, such as to warrant a vigorous prosecution of the adventure. Since 1873 the work had been carried on by borrowed capital, and of the 60,000*l.* 15 per cent. debentures raised by the company, had been expended in liquidating pressing claims, of which Mr. Erwin Davis received the larger part. The board had advanced a considerable sum towards keeping the mine open in hopes of support from the shareholders with fair results, but owing to the urgent requirements for ventilation of the most productive shaft they were unwilling to incur further liability, and were reluctantly obliged to close the mine. They were following a good shoot, which was expected to lead to the main vein, when they encountered the above-mentioned difficulty, which put a stop to further progress.

It was suggested to reconstitute or reconstruct the company, but after discussion it was agreed that the present course, if responded to, would fully meet the requirements of the company, and attain the same object more speedily and more economically. In answer to enquiries, Mr. St. Stephens, a former manager of the mine, who in lieu of his claim for salary had taken part in debentures, gave a detailed description of the workings, and reiterated his conviction that with moderate outlay and good management the property would prove both valuable and remunerative. He estimated that nine months work would be required to cut the main lode, and with a superintendent resident and ten miners the cost would not exceed 25,000*l.*

The CHAIRMAN said 10,000*l.* should be raised immediately to enable the board to make arrangements to recommence work. It was also resolved to allow the present debenture-holders to convert their debentures into preference shares, and it was expected that they would acquiesce in this arrangement. If the directors met with adequate support, with the consent of the shareholders, they would appoint an acknowledged experienced mining engineer to undertake the duties. Being one of the shallowest mines of the district, and, therefore, least expensive in working, and from which it appears about 2000 tons of carbonate ore have been obtained, it is confidently expected that at a lower depth the mine would be more productive. The meeting closed with a vote of thanks to the Chairman.

## HORNACHOS SILVER-LEAD MINING COMPANY.

The ordinary general meeting of proprietors was held at the Cannon-street Hotel, on Wednesday,

Mr. ALEXANDER PARISOT, the Chairman, presiding.

Mr. WILLIAM BATTYE (the secretary) read the notice calling the meeting, and the report and accounts were taken as read.

The CHAIRMAN said—It was the wish of the directors, gentlemen, to give you the fullest information possible in their report, and up to the latest date, to enable you to form your own opinion as to the results of the company's operations for the past 12 months, as well as regards the prospects for the present year. This wish of the directors has been carried out to such an extent that it has left me very little to say on the present occasion, especially as since the issue of the report we have had no news of any special importance from the mine. The machinery at the Descuadada Mine started to work as you are aware, just before the last general meeting, which was held nearly a year ago. It was found to work remarkably well, and to be exactly adapted to the character of the mineral we have to deal with. Soon after, however, it was discovered that various additions were required, and also some modifications and re-adjustments to ensure more regular and efficient working. All this has been carried out, but, of course, some time was taken up by it, and consequently several stoppages and delays took place, which have interfered with the returns of ore during the first few months of last year. You will be glad to know, however, that our managing engineer reports that the whole of the machinery is now working to his entire satisfaction. Notwithstanding the stoppages which I have mentioned, the result of the working of the Descuadada Mine has been a considerable profit. A profit which we estimate at about 60,000*l.*, and had we been able to set this profit aside for distribution amongst the shareholders it would have enabled us to propose to you to-day the payment of a dividend at the rate of 7½ per cent. per annum. This profit has been otherwise disposed of, as you will see it explained in the directors' report; but the fact of that profit having been made will, no doubt, be considered by you a favourable feature in the case. The returns of ore for the 12 months ending December 31 last have been 332 tons, of the value of 13,000*l.*, and Mr. Homedes proposes to increase the quantity of ore to 600 tons, which will give us an additional 218 tons: 600 tons may seem a small quantity to you, but you must bear in mind that it represents the concentrated produce of between 5000 and 6000 tons of rough mineral as extracted from the mine, and that it entails the stoppage of about 3000 square metres of the lode. The total sales of ore from the beginning of the company's operations up to this date amount to about 20,000*l.*; this quantity of ore was produced from the stoppage of 2914 square metres of lode—that is to say, of 2611 square metres from the Descuadada, and 403 from the Afortunada Mine. Our manager intends to stop in future one floor and a half per year, or in other words to stop the lode for a depth of 30 metres by 100 metres in length. With respect to the 3000 square metres, consequently, provided that quantity of ground is taken away, Mr. Homedes' estimate of 600 tons from Descuadada appears to be a reasonable one, and ought, if anything, to be exceeded. As regards the Afortunada Mine, I have no doubt that we shall soon have this mine in profitable working. The erection of the machinery and buildings is very far advanced, and Mr. Homedes thinks that everything will be completed by March 15, but of course it is very difficult to calculate to a few days, or even weeks, in such cases, for something or other may occur at the last moment to prevent the machinery starting to work on the day intended upon. All the machinery is now at the mine, for even the last portion of it should have been received by this time. The machinery which we have provided at Afortunada is even upon a larger scale than that put up at Descuadada, for the Afortunada is considered to be the more important mine of the two, not only on account of the greater extent of the ore ground, but also on account of the greater richness of the mineral for silver. A few tons of ore from Afortunada have been sent over principally to test the market value, and the prices realised were 48*l.* and 47*l.* per ton, but the price of silver at that time was considerably higher than at the present moment, and this fact must not be lost sight of. There will always be, however, a difference of about 1*l.* per ton in favour of Afortunada ore as compared with the Descuadada ore. With respect to the accounts, we have endeavoured to make them as simple as possible, and to give the fullest information. It would, therefore, be a waste of your time to enter into any explanations with regard to them, but we shall be glad to answer any questions that you may wish to put to us. I shall now, with your permission, move that the report of the directors submitted to this meeting and the balance-sheet to June 30 last be received and adopted.

The CHAIRMAN, in reply to a question, said that a general meeting would be held as soon as the directors found that they had anything important to communicate in the way of definite results.

A SHAREHOLDER asked how the great discrepancy arose in the rate of freight and charges? Some parcels had cost 13*l.* 6*d.* and others as high as 32*l.* per ton. The CHAIRMAN explained that in some cases the ore had been sold ex ship in London or Liverpool, and there were no charges except freight from Lisbon, whilst in other cases the ore was sold delivered at the smelting works, and this caused an additional cost of about 20*l.* for carriage.

A SHAREHOLDER asked when they might expect the machinery to be finished at the Afortunada Mine? The CHAIRMAN said Mr. Homedes believed it would be finished by March 15th, and for some time they had had the bulk of the machinery there, and the small remaining portion must have reached the mine. Mr. MARTIN pointed out that the mine was very much in debt, and he wished to know the policy of the directors in regard to the payment of the debt. The report did not state what the policy was. If he understood the accounts aright the debt was 11,000*l.*, and including that they had to pay during the year something like 17,000*l.* or 18,000*l.* He would ask how the directors proposed to pay it?

The CHAIRMAN said that on statement No. 3 the indebtedness was shown to be 8000*l.*. This amount was spread over the greater portion of the present year. In addition they had to make a further payment of 2000*l.* for debentures, which will be drawn in March next, and the interest on the debentures, making together about 11,000*l.*, as Mr. Martin had correctly observed. But this comprised the whole of the liabilities of the company. On the other hand, they would see by Mr. Homedes' report that the estimated profits for the present year were 28,900*l.*, but deducting 11,000*l.* from the 28,900*l.* there would be 17,900*l.* left, so even taking off 4000*l.* or 6000*l.* additional for contingencies it would still leave a margin for a very handsome dividend. Of course as soon as those liabilities were paid off the whole of the profits would go towards dividends.

Mr. MARTIN said that supposing the estimates were not realised how were they going to pay the debt? The CHAIRMAN said there appeared to be a good many suppositions in Mr. Martin's speech. The directors had no doubt whatever that the debts would be readily met.

A SHAREHOLDER asked if Mr. Homedes was in the habit of going underground? The CHAIRMAN said he had scarcely ever seen Mr. Homedes except in his mining dress. He spent half his time in the mine.

A SHAREHOLDER asked how much ore there was per metre? The CHAIRMAN said about 1 ton per square fathom of the lode.

Mr. KINGSTON asked if there would be any objection to the mine being inspected by an independent person? The CHAIRMAN said he had not consulted with his colleagues, but he should think there would not be the slightest objection, but, on the contrary, the board would afford every facility.

Mr. KINGSTON then said that at a later period he should propose that Messrs. John Taylor and Sons be requested to appoint one of their managers or captains to inspect the mine, and report to the shareholders. He believed this would give great confidence to the shareholders. He asked what Mr. Homedes' salary was?

The CHAIRMAN: 1000*l.* a year; it was fixed in proportion to the amount which he had been receiving from the other mines which he had been successfully conducting.

Mr. KINGSTON thought the London expenses were somewhat high. The CHAIRMAN said the directors had not drawn their fees, and the other expenses were kept down as low as possible.

After some further unimportant discussion, the resolution for the adoption of the report and accounts was put and carried.

Mr. KILBY moved the confirmation of Mr. Parisot's election, the Chairman of the company. A SHAREHOLDER seconded the resolution.

Mr. W. GLEDON said he should have been most happy to second the motion had not a shareholder forestalled him. He might mention that the Chairman had been in Spain, and knew all about the mines. Soon after Mr. Parisot joined the board his fitness for the position of Chairman became obvious, and Mr. KILBY voluntarily resigned the chairmanship, and Mr. Parisot was elected in his place. Mr. GLEDON went on to express his belief that the estimates of the manager would be fully realised—in fact, he thought more than realised. He believed that next year the prospects of the company would be very much more satisfactory to the shareholders.

The resolution was then put and carried.

The retiring directors Mr. KILBY and Mr. Anderson were then re-elected, and Mr. T. S. Evans was re-appointed auditor.

The CHAIRMAN said that before Mr. Kingford proposed his resolution he would make one observation. A Glasgow shareholder was having the mine inspected on his own account by an eminent mining engineer, and no doubt the directors would be able to obtain a copy of that report and send it to the shareholders.

Mr. KINGSTON said that under these circumstances he would not proceed with his resolution.

The CHAIRMAN, in answer to a question by Mr. Taylor, said the directors did not see the necessity of half-yearly meetings, but any information which the shareholders required could always be obtained at the office.

A cordial vote of thanks was then passed to the Chairman and directors, and the meeting broke up.

## NEW PRINCE OF WALES SLATE COMPANY (LIMITED).

An ordinary general meeting of shareholders was held at the company's offices, St. Clement's House, Clement's-lane, on Friday, the 11th inst.,—Mr. CHARLES BARTON in the chair.

The SECRETARY having read the notice convening the meeting, the CHAIRMAN declared the meeting duly constituted. The report and accounts of the directors were taken as read; and, on the motion of the CHAIRMAN, seconded by Mr. CHARLES COX, unanimously received and adopted. The retiring directors were re-elected.

An Extraordinary General Meeting was held immediately afterwards, when the three special resolutions passed at the meeting held on Dec. 12 last, winding-up the company and transferring the property to a new company, with a capital of 25,000*l.*, were unanimously confirmed.

Mr. HELMORE said that he deplored the necessity for the course adopted, but there was clearly no other way open, and he felt sure that the directors had done all they could to avert it, but he hoped that by the formation of the new company they would be to some extent recouped.—A cordial vote of thanks to the Chairman terminated the proceedings.

## GREAT CARADON MINING COMPANY.

A general meeting of shareholders was held at the offices of the company, Gresham Buildings, on Friday, Jan. 11, for the purpose of passing the accounts from May 16, 1874, to Nov. 28, 1874, to make a call, and for transacting the ordinary business of the company. There was also a second general meeting held, particulars of which follow.

Mr. PHILIP BLAKE in the chair.

Mr. GRANVILLE SHARP (the secretary) read the notice calling the meeting.

Mr. GRANVILLE SHARP said he would, in pursuance to the first notice, call attention to a meeting held on December 30, 1874, to which a shareholder had subsequently taken exception on the ground that only one shareholder was present, but he (Mr. Sharp) could state on oath that there was more than one shareholder present. He believed the present chairman attended the meeting on that occasion, but Mr. Blake could not exactly recollect whether he did or not. He (Mr. Sharp) also recollected that there was another gentleman present. At any rate, a shareholder had since taken exception because only the chairman who presided at the meeting signed the book, the others having gone out without having done so, which was a common omission. At that meeting a call of 4*l.* 6*d.* per share was made, and the shareholder to whom he had alluded, in order to escape payment of the call, objected to the legality of the meeting. Now, for the purpose of recovering the call it had been decided to hold that meeting over again, so the statement of accounts No. 1 was the same as was submitted to the meeting on Dec. 30, 1874. It was intended to propose the same resolutions as were then passed. With respect to the statement of accounts No. 2, it showed a debit balance of 491*l.* 2*s.* 11*d.*, and in this account all bad debts at present known had been charged. It would also be necessary at this meeting to make a call to cover that debit balance, because after the special meeting was held, and a liquidator appointed, the liquidator could not make a call, and it would necessitate the thing going into the Stannaries Court, which would at once render necessary a call of double the amount which would otherwise have to be made.

The minutes of the meeting held previous to the meeting of Dec. 30 were then read. The CHAIRMAN formally moved that the report and balance-sheet submitted to that meeting be received and passed.—Mr. SHARP seconded the resolution, which was put and carried.

The CHAIRMAN then moved the following resolution, which was also passed at the meeting on December 30, 1874:—“That a call of 4*l.* 6*d.* per share be now and is hereby made payable to the secretary, and that a discount of 5 per cent. be allowed if paid by January 20, 1875.”—Mr. SHARP seconded the resolution, which was also put and carried.

The CHAIRMAN moved the following resolution, which was also passed on December 30, 1874:—“That in consequence of the death of Colonel W. T. Nichols, and until the appointment of a shareholder to act in his stead, all cheques be signed by Mr. R. H. Silversides and Mr. G. Sharp.”—Mr. SHARP seconded the resolution, which was carried.

The second general meeting, of which notice had been given, was then held, and on the motion of the CHAIRMAN, seconded by Mr. SHARP, the accounts from July 8, 1875, to October 27, 1877, were passed.

The CHAIRMAN said he had carefully gone into the position of the company, and he thought they should make a call of 7*l.* per share to clear off all liabilities. He, therefore, moved that a call of 7*l.* per share be made payable forthwith.

Mr. DREW seconded the resolution, which was put and carried.

The meeting was then made special, and on the motion of the CHAIRMAN, seconded by Mr. DREW, a resolution was passed to wind up the company voluntarily, and Mr. GRANVILLE SHARP was appointed liquidator, his remuneration to be a continuation of his salary as secretary.

A vote of thanks to the Chairman closed the proceedings.

COMBARTIN.—At a general meeting of adventurers held on Wednesday (Mr. Frederick Thomas in the chair) the accounts showed a debit balance of 71*l.* 19*s.* 9*d.*. A call of 1*s.* per share was made. The agent's report stated that during the past quarter five lodes have been discovered in costeaning the western ground. One of these lodes will be intersected shortly by the 25 fm. level, driving west from Harris's shaft, when the agent is looking forward to a good discovery of silver-lead. The 15 fm. level on Harris's lode has been cleared and secured 15 fathoms, and driven 6 fathoms into new ground. This level is being driven with a view to reaching the eastern cross-course, at which point the lode at surface shows the most favourable indications. An adit level has also been driven 10 fathoms. The object here is to intersect 25 fathoms deep some of the lodes lately discovered in the western ground. The ground in this level is highly mineralised, and is being driven at 30*s.* per fathom; thus there are three speculative points in operation, in either one of which a fair discovery of ore would result in a profit to the company, as the costs are very light (there being no machinery required), the agent calculating that the expenses for the ensuing quarter will be about 70*l.* per month.

LIVINGSTONE CONSOLS (St. Agnes).—Highly favourable reports upon this property have been made by Capt. John Nancarrow, Stephen Davey, and W. T. White, and as the entire district has long been celebrated for its mineral wealth it appears to be a promising field for mining enterprise. Capt. Nancarrow states that the lode, which has given 50,000*l.* profit in Wheal Kitty, runs through the property, but scarcely any trial has yet been made on it; the little work done has resulted in good returns of copper and tin. The flat lode has yielded a great deal of tin about the cross-course in Polbreen, and there is no reason why it should not be equally productive in Livingstone. Capt. Stephen Davey says that the parish of St. Agnes has been from time immemorial well known for its rich produce of tin ore, and that there is every probability that in Livingstone a similar result will be obtained. The lode opened in the adit and 14 fm. levels has been taken away at tribunes varying from 8*s.* to 13*s.* 4*d.* in 1*l.*, showing that when sufficient ground is laid open for stopping it can be taken away at a profit. He anticipates as good results as in Wheal Kitty when Livingstone Consols is properly developed. He believes it to be a good piece of mineral ground, and especially now that the tin market has taken a turn for the better young mines such as the Livingstone Consols should be opened, especially as both materials and labour are cheap. Capt. White reports that he found several well-defined east and west lodes, the most prominent of these being the Wheal Kitty flat lode, which traverses the whole length of the set and the entire district as well, and from which large quantities of tin have been raised and good profits made. He learns that the Wheal Kitty lodes have been extended home to the eastern boundary of this mine, leaving an end of ground for upwards of 100 fms. in height of a good profitable lode. He considers the prospects of the mine very encouraging; the water charges are very little, this being a characteristic of the district, and judging from its position, being situated at the base of St. Agnes Beacon, in a nice flat where mineral in general is found in great quantities, he would say very large deposits of tin will be most assuredly found.

## AUSTRALIAN MINES.

PORT PHILIP AND COLONIAL (Gold).—The directors have advised dated Nov. 27: Quantity of quartz crushed on both the companies and tributaries' accounts for the four weeks ending Nov. 7 was 5056 tons. Total gold obtained, 1919 ozs. 16 dwts.; receipts (including 1950*l.* 15*s.* 4*d.* obtained from tributaries), 4348*l.* 8*s.* 5*d.*; payments (including 238*l.* paid for the new cylinder, firewood, &c.), 2549*l.* 8*s.*; profit, 1794*l.* 0*s.* 5*d.*, added to which was previous balance of 2274*l.* 12*s.* 10*d.*, making an available balance of 4068*l.* 13*s.* 3*d.*. The amount divided between the two companies was 1900*l.*, the Port Phillip Company's proportion of which was 1044*l.*; the balance carried forward was 2463*l.* 13*s.* 3*d.*, remittance, 1000*l.*

ENGLISH AND AUSTRALIAN (Copper).—Port Adelaide, Dec. 1: The stock of coal at Port Adelaide was about 600 tons, besides the cargo per G. L. Hall arrived. The smelting furnace and refineries, both at Port Adelaide and at New castle, were in full work, and the operations of the company were proceeding satisfactorily. Since date of last advice a further shipment of 50 tons of copper had been made.

ENGLISH-AUSTRALIAN (Gold).—Capt. Ralsbeck, Fryerstown, Nov. 28: On the 28th inst. commenced to sink the engine shaft; we have sunk 13 ft.; present depth from surface 396 ft. The country passed through is chiefly stony sandstone bare, with a little quartz intermixed. We were delayed for two shifts by the rods breaking in the pumps, and also when fixing the screw. This is the first breakage in the mine. Having to keep a boy to assist the engine driver in the night when hauling mullock from the bottom of the shaft, and as he could at-

tend the battery in the meantime, I had some stone crushed from the north of No. 1 cutting, which yielded 11 dwts. of gold. If not answering my expectations I shall not crush any more of it. On the 28th inst. the contractors at the prospecting shaft gave up their contract, having only sunk 12 ft. We have let the remainder to another party at 24*s.* 4*d.* per foot. They have sunk about 14 ft., but are making very slow progress; present depth 187 ft., required depth for the present 291 ft.

SCOTTISH AUSTRALIAN.—The directors have advised from Sydney, dated Nov. 28, with reports from the Lambton Colliery to Nov. 20. The sales of coal for the month of October amounted to 14,934 tons.

## Original Correspondence.

## NORTH LAXEY, AND ITS MANAGEMENT.

SIR,—Some remarks on the above subject which appeared in last week's *Mining Journal*, make it incumbent on me to address you. Referring to the proceedings of the late general meeting, the writer in your paper says, “It was plainly stated that there was suspicion of secret negotiations, not in the interest of the company, having been carried on between the secretary and certain individual *Manx* shareholders; that the London directors had not acted in a manly way, either towards their colleague in the island or the local manager, and that if the management were changed a large number of independent shareholders would withhold their support.”

Now, Sir, the whole of this statement is a fabrication, and the only justification for it is that Mr. Spittall, in attempting to throw discredit on the complainants, chose to divert attention from the real question, and to unduly prejudice the minds of the shareholders by unwarrantably insinuating that there “appeared” to have been a secret correspondence; but nothing was said as to its being “not in the interest of the company,” nor is there any ground whatever for saying that either the London directors or I have not acted fairly to the local director and Capt. Rowe, nor that “if the management were changed, a large number of independent shareholders would withhold their support.” The contrary of all these assertions is the case, as I shall now proceed to prove.

Capt. Rowe has long been aware that many persons had no faith in his management and reports. For at least the last 12 months he has had numerous remonstrances from the office, and on Nov. 7 last I wrote to him, by desire of the board, that at their next meeting (about a month afterwards) the directors intended to consider the propriety of calling a general meeting “for the purpose of laying before the shareholders the financial position of the company and considering the local management of the mine.” Capt. Rowe was also advised of Mr. Plummer's visit as soon as it was known. It was not till Dec. 23 that the circular calling the meeting was issued, and on Jan. 1 (10 days before the meeting) I wrote fully and unreservedly to Mr. Spittall, in answer to a letter from him, giving him an outline of the finances, and explaining the views of the London directors as to Capt. Rowe.

I also received a letter, dated Dec. 27, from Mr. George Maley, of Douglas (holding 311 shares), of which the following is a copy:—

“NORTH LAXEY.

“DEAR SIR,—I have received your circular convening a meeting of the shareholders in North Laxey for January 10. As it will be impossible for myself and other shareholders, who take a deep interest in the mine, to attend the meeting, I shall be glad if you will kindly inform me of the substance of the report to be laid by the directors before the meeting. The object of the shareholders here is to assist the directors to, if possible, save the property for the present company, and they are desirous of making some suggestions that may be of service. I am much pleased that the local management is to be considered, as I and others think a change ought long since to have been made. An intelligent, energetic resident captain of known ability is wanted.

“I cannot see the use of two captains such as exist at present, and I firmly believe that if a good man was appointed North Laxey would soon be in a very different position to what it is at present. A change is absolutely necessary, and I trust the directors will now take such steps as will save the mine from ruin and the shareholders from total loss.”

To this I replied in a similar way to what I have explained above. I wrote to Mr. Spittall, and the correspondence (which I considered official) was duly laid before the directors. On the morning of the general meeting I received the resolutions passed at the Douglas meeting, the first of which was—“It was unanimously resolved that, in consequence of the very unsatisfactory state of North Laxey Mine, the directors be asked to make an entire change in the local management.” The resolutions were accompanied by another letter from Mr. Maley, and both these documents were seen and read by Mr. Spittall some time before the general meeting began. Mr. Spittall not liking the contents of that letter, particularly a part which reflected on himself, was very anxious that it should not be read at the meeting, and so far only could it be called secret. Therefore the alleged “secret correspondence, not in the interest of the company,” so far as I am concerned, is simply a myth, and it will be seen from what I have stated that it is contrary to the fact that the London directors did not act in a manly way to their colleague in the island or the local manager.

There were 23 shareholders at the general meeting (without counting proxies), and of these only five voted for the amendment to retain Capt. Rowe for the present. Of these three or four stated that the reason for their doing so was that they wished to give Capt. Rowe “another chance,” but as they had joined the company only recently, and knew little or nothing of the past, their experience scarcely enabled them to judge of the case. The great bulk of the meeting did not vote at all, thinking it was a matter entirely for the directors, in whose hands they confidently left it, knowing that they have power to make any change they like under the Articles of Association. It may also be of interest to state that the person who took the most active part for Capt. Rowe at the meeting was not a registered shareholder till the 3rd instant, when he sent in a transfer of 10 shares.

There are nearly 400 shareholders in the company, and I believe, at least the same proportion of those absent from the late meeting hold the same views on this question as the large majority of those who were present, and there is nothing to justify the statement that if the management were changed a large number of independent shareholders would withhold their support; in fact, the contrary would be the case.

I may now take this opportunity of noticing some other remarks which appeared in the paragraph I have alluded to. The writer refers to Mr. Plummer's report, in which he says that there is an immense amount of work done at the mine, and well done; that, in addition to the plant and machinery, there are good buildings, &c., and he thinks due economy has been observed. As Capt. Rowe has had an immense amount of capital at his disposal, besides the proceeds of the sales of ore, it would indeed be surprising if there were not something to show for the money. As to the “economy,” Mr. Plummer was only at the mine a few hours, chiefly occupied in examining the workings underground, and he has not attempted to go into the accounts and see what various things have cost, even if this were now practicable. Nor can Mr. Plummer now compare Capt. Rowe's reports from time to time over many years past with the actual appearances of the lode at different points on each occasion. But the writer in your Journal further quotes from Mr. Plummer's report, in which he says, “When the trials (recommended by him) are made I daresay you will find yourself (meaning the mine) in a much better position.” Your writer adds his own comment on this by remarking, “All reasonable men would interpret this to mean that the local management has done its best, but that the concern is a failure; but the secretary and London directors seek to reverse this decision, throw the blame of the mine's poverty on the manager, and raise more money to send after the other.” To say the least, this is very strange reasoning. If people have spent 100,000*l.*, or even half of it, on a property, and they are told by an independent authority that a further outlay of 2280*l.* will likely place it “in a much better position,” I think that they would naturally adopt the advice, if on y to endeavour to get back their heavy expenditure.

But your writer omits to add that Mr. Plummer also says, “It is not possible for anyone to speak positively on the quantity of ore these trials are likely to open out, but to judge from present appearances there can be no doubt the small sum I have named would be well spent.” He also says that the short cross-cut in the 73 if successful will give immediate relief, and that the lode is more compact in the deeper levels. But on what grounds are the secretary and London directors singled out as those who wish to throw the



blame of failure on the local manager, and raise more money to send after the other? In the first place, Mr. Plummer (whom your writer takes as his authority) says that the sum he names would be well spent on the trials he recommends, and he thinks the result would be to place the mine in a much better position. On the other hand, it is really the *Ile de Man* director and shareholders who most strongly advocate further expenditure. The latter write that, "The company have a most excellent property, and if the changes proposed at our (local) meeting on Saturday be carried out the shareholders will yet reap a return for their continuous and heavy outlay;" and, further, they state that "with honest and proper management North Laxey will yet be a great mine," while one says that he has been a holder in each of the companies that have worked the mine under Mr. Rowe's management, and that it ought to have paid long ago. I submit, therefore, that most reasonable people would consider that the mine itself is at least not yet proved to be a failure, and that its non-success hitherto may be attributed to another cause.

As to your writer's comments on "legitimate mining," I need say nothing. I have no doubt I have done as much to promote that as he has done; and as this letter has already reached an unusual length, I will make no further remarks on North Laxey at present.

#### NORTH LAXEY.

SIR,—The directors must have noticed at the late general meeting that most of the shareholders present felt a delicacy in voting for a resolution requesting them to make a change in the local management, but at the same time it is unmistakable that the general feeling is that the directors should act if they think it necessary, while many would urge them to do so. It is an important question in connection with getting the proposed new capital, and it is to be hoped the board will give it their immediate attention.

#### GLENROY MINE.

SIR,—Is not Capt. Rowe also the local manager of this mine as well as of North Laxey? After the late proceedings of the latter company, I think the Glenroy shareholders should bestir themselves while there is yet a good sum of unexpended capital. I believe the property to be a promising one, and it would be a pity to let it become a failure, or to see all our funds exhausted, through inefficient management.—Jan. 16.

#### MINING IN NORTH WALES—THE HALKYN MINE.

SIR,—While the North Hendra, Gorsedd and Merilyn, Prince Patrick, and other renowned mines on the Halkyn Mountain, are creating some stir, it may not be out of place for me here to give your readers a cursory glance at the prospects of the above-named mine, which will undoubtedly in a short time rank as one of the best mines upon this celebrated old mountain, which has for so many centuries been yielding its wonderful resources to the enterprising public. The sett, as in the hands of the present party, comprises Silver Rake, West Prince Patrick, and Lady Constance sett. Three at one time distinct setts, but now known as the Halkyn Mine, each representing a field for investment as an seldom can be met with. The Silver Rake is situated north of the sett, and is a strong masterly lode, having its course strongly marked on the surface. To cut this lode in depth a whin-shaft has been sunk by the ancients 107 yards, which has not, however, as yet cut the lode. The ground in sinking must have been very hard, and the old men must have been very sanguine of ultimate success to have undertaken the sinking of a shaft of this description; it was very probably their intention to meet in this depth the course of ore known to have gone down 80 yards west of this, from where large quantities of lead ore have been extracted. From the bottom of the shaft a cross cut has been driven to the lode, which being found virgin, and the tools of the old miners in the fore-breach, it is evident proof that they were driven out by a small feed of water issuing from the breast. The present party, however, managed with the aid of a whin to drain the mine for a short time, and extend about 3 yards west on the lode, at this point extracting in their drivings stones of ore upwards of 1 cwt. each. I should mention that by extending the eastern level from this point and deeper two masterly north and south lodes will be intersected, which cannot fail to have a beneficial effect upon the Silver Rake lode, and that the level will be 40 yards deeper than the former workings. I understand it is intended to place a small engine capable of working 30 ft. lift of pumps on this shaft; when this is done, and the levels mentioned extended, this mine will be permanent in its success. West Prince Patrick is bounded on the east by the Great Prince Patrick, which yielded during 30 years time a profit of 1,000,000. The matrix of the lode which is the same, is identical in both mines. There are several tributaries at work in different parts on this lode, and a parcel of lead while I was on the mine was being made ready for sale. The character of the lode is such that any day a strong course of ore might be expected. There is a good sized shaft here 100 yards deep, which has passed through most promising ground, yielding some stones of lead, improving as depth was attained, and there is every reason to believe that a further depth is reached this lode will not be behind in contributing to the general fund. Lady Constance has the Grosvener Mine on its eastern boundary; this part of the mine I learn is traversed at least by four lodes, from which hundreds of tons of ore has been risen. I was unable to examine either, water being in the mine, but was struck with the surface formation, it being such as would be pleasant to the eyes of an old miner, who connects a good mine always with a hollow; but, of course, to this there are many exceptions, but from the statements of high authorities who have reported upon this mine when dry it can stand good, as they have no hesitation in stating this part of the mine would pay well for opening, there being ends valued at 3 tons per fathom. I am glad to notice these mines are now in such good hands, and have much pleasure in congratulating the fortunate possessors of them.

#### FLAGSTAFF MINING COMPANY.

SIR,—You have inserted in the Journal of Jan. 5 and 12 two letters by Mr. Edgerton. He affects to be very desirous of assisting the shareholders, and professes himself to be at their service, and at the same time he lends himself with great versatility to the enemies of the company. If must have occurred to most of your readers to ask what interest this man has in the affairs upon which he bestows so much time? The fact is he has no interest whatever, but is a gentleman at large, and having neither business nor property of his own he naturally meddles with, and tries to get hold of, that of others, so he says "his services are entirely at the disposal of the shareholders." No doubt they were at my disposal once. He is a citizen of New York, but since 1869 "he has never," as I learn from family sources, "earned a dollar." It is right I should warn the public against my own example, and caution them not to let their generosity or simplicity be imposed on. He is a man who must and should be thoroughly exposed. Soon after my acquaintance with him he implored me by letter, which I have, in God's name to save him from being turned out of his hotel for lack of means to pay his bill. I yielded to his appeal, and for some time assisted him, and gave him the opportunity he desired to show his usefulness, and render the services of which he declared himself capable. He accepted my assistance, and, indeed, for several months lived on me. I was sorry for him, and would willingly have put him in the way of helping himself. I took him to some extent into my confidence, and he availed himself of the opportunity to make notes of everything he saw and heard, that he might be ready when occasion offered to use them against what he would call his generous and simple friend. Will it be believed that the whole of the arrangements effected by me at Salt Lake City were reported on by him as admirable and highly advantageous to the company? Yet such is the fact, and his letters to that effect are extant. Why are those arrangements now described as disadvantageous and unacceptable? Do your readers know that this Mr. Edgerton is now prosecuting an action by which he seeks to recover \$3000 or \$4000 for his "services" in assisting to make those very arrangements which he now so strongly condemns? I observe he flourishes his "references" as heretofore. He favoured me with some, and when I inquired into them found that the gentlemen referred to knew nothing of him. I advise no one to make his acquaintance, but, if they will, here is my introduction.—Jan. 18.

(For remainder of Original Correspondence see this day's Supplement.)

THE HIGHEST MINE IN THE WORLD.—The Moose Mine, in Colorado, located nearly on the culminating point of South Park range, is at present the highest mine being worked in the world. Its boarding and living houses for the miners are built into the mountain at the mouth of the mine, considerably over 14,000 feet above tide water.

GREAT HOLWAY MINE.—For ages past this mine has been associated with Holywell, and its prosperity considerably contributed to that of the town. It is now our pleasure to announce that a highly influential and wealthy new company has been formed, mainly through the instrumentality of our spirited townsman, Mr. William Perry, and the board of directors visited the mine on Tuesday last, accompanied by the chairman, Sir Stephen Webster, K.C.M.G., and Mr. E. J. Bartlett, their indefatigable secretary. In honour of the event flags were hoisted, and no little interest was manifested by the residents in the immediate neighbourhood. Active operations are now being carried on, and in a little while it is expected that upwards of 100 men will be employed. The undertaking is an important one, and we heartily wish it every success.—*Flintshire Observer*.

PATENT AGENCY.—For many years past the patent agency business of the late Messrs. Robertson and Broomman has been exclusively conducted by Mr. HENRY GARDNER, of 40, Fleet-street, who has been connected with the firm for upwards of 30 years. As he has always given satisfaction to his clients, and displayed great shrewdness in grasping and describing the novelty and advantages of the inventions entrusted to his professional care, his friends will be glad to learn that he will henceforth undertake the agencies on his own account.

#### FOREIGN MINES.

ST. JOHN DEL RY MINING COMPANY (Limited).—Advices received Jan. 3, 1878, ex Monrovia, dated Morro Velho, Dec. 1. GOLD EXTRACTED TO DATE.—The produce extracted during the second division of November—a period of eleven days—amounts to 15,698 oits. It has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
General mineral	7,628.3	from 1181	= 6.603
Mineral free from killas	6,491.8	757	= 8.575
Praia stamps	572.6	113	= 5.067
Total	14,692.7	2051	= 7.292
Retreatment	1105.5	—	= .551
Total	15,698.2	2051	= 7.843

Equal to 1809.740 oits. troy = 9044.471 lbs. troy. It has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
General mineral	20,515.6	from 3254	= 6.300
Mineral free from killas	17,539.8	2080	= 8.432
Illingworth stamps (Praia)	1,590.6	284	= 5.495
Total	39,646.0	5620	= 7.049
Retreatment	2,793.5	—	= .497
Total	42,439.5	5620	= 7.546

Equal to 4589.1555 oits. troy = 4047.471 lbs. troy. The amount of mineral treated exceeds that for October by 723 tons, of which 440 tons have been taken from the reserve stock. The total quantity of amalgam produced is 95,552 oits., yielding gold to the extent of 44.38 per cent.—6484 cubic feet of sand has been amalgamated; yield, 6.06 oits. per cubic foot, which is an improvement on former returns.

COST AND PROFIT.  
The produce for Nov. being 42,409.5 oits.  
Less loss in melting 300.9  
Add sundries received 97.8  
42,206.4, at 7s. 9d. per oit. = £16,354 19 7  
Cost 7,585 13 8 1/2  
Profit £8,769 5 10 1/2

The above cost is as low as could be expected, considering the continued high price of provisions and the large amount of construction and repair work now being carried on.

MINES.  
Mineral raised from mine 6606 wagons.  
Quarried per borer 2.10  
Average number of borers daily 120.89  
Average number of natives daily 117.39

SUMP AND STOPS 278 A AND B.—The general appearance of the lode at this point is without alteration, its width of pure and mixed mineral being 37 ft. The sinking rate has been more favourable, and special efforts are being made towards the formation of a deeper stop. The permanent timbering of the south wall consequent on the removal of the large extent of lode, 40 ft. long by 36 ft. high, is nearly complete, and when finished will give greater security to this part of the mine.

LEVEL ABOVE SUMP.—The increase in the width of the mixed mineral body shows no change since last advice. The advance made is fair considering the width of the forebreast—14 ft. The disordered condition of the lode at this horizon tends to the belief that no important improvement can be looked for until greater depth is reached with a corresponding extension at a lower horizon. Too much importance must not, however, be attached to the present disturbed indications, such variations being of frequent occurrence. Owing to scarcity of force driving will be temporarily suspended pending the removal of the overhanging ground above sump, section 258 D, which now becomes necessary for the better security of the mine.

EASTERN DRIVING UNDER ROOF AND STOP, 256 B.—The level has been under suspension the greater part of the month. From the stop a large extraction of good mineral has been made, with but little variation in either size or quality of the lode. The operations for the coming month will be principally confined to the upper part of 217; the stop in its present form no longer admitting of a large and economic extraction.

STOPS 277 B AND 257 C.—In the former the larger mineral contents remain unchanged; its width has been increased 7 ft. 8 in., due to the stripping of the south wall above referred to, all of which is mineral of high grade. The latter calls for no remark.

STOPS 256 A B.—The working for the month has been confined to the extraction of mixed mineral from the lower part of the tooth in the north wall, a large proportion of which has been quartz, with fine irregular lines of pyrites. There is a large body of this mineral available from which continued extraction will be made, pending the further development of the western sections.

WESTERN SECTIONS 255 C AND 255 A AND B.—The general promising indications throughout the entire length and breadth of the above sections show no falling off. The extraction of good mineral has been very large, and from where extracted the mineral body presents a fine and lasting appearance. The necessary stalling for an extension of the stoping area to 255 A is nearly completed. In the level driving for the month—8 ft. 6 in.—has been through a compact lode of fair average pyritic matter and blue quartz.

A CROSS CUT.—The total advance to date is 17 ft. 6 in. Advance holes will now be driven, in anticipation of any undue quantity of water being met with. This is not, however, expected, there being barely any pressure on the present discharge from the lower coals, a few feet above. The communication is eagerly looked for, not only for the purposes of drainage and ventilation, but the advantage to be derived from the comparison of the old and new formation, from which valuable data as to future workings may be obtained.

B SHUTT.—Sinking has been steadily proceeded with. The rate at present is low until arrangements can be made to take up the surface water, which has considerably increased since the rains set in.

GOLD EXTRACTED TO DATE.—The produce for the first division of December—a period of eight days, has amounted to 11,945.2 oits. = 1377 oits. troy. It has been derived as follows:—

	Oits.	Tons.	Oits. per ton.
General mineral	5457.5	from 937	= 5.824
Mineral free from killas	5202.5	578	= 8.985
Illingworth stamps (Hookin's)	805.4	119	= 6.984
Total	11,465.4	1635	= 7.013
Retreatment, &c	479.8	—	= .293
Total	11,945.2	1635	= 7.306

Or 11,945.2 oits., equal to 1377.081 oits. troy. The produce for the preceding division is very satisfactory, being at the rate of 1493 oits. per diem. Twelve additional heads (Hookin's) at the Praia are in course of reconstruction, and will go to work in a few days. The additional power much needed, in fact, repairs extending over several days being necessary at the Poles at Susanah stamps.

MINES.—Return of duty performed in a period of 13 working days:—  
Mineral raised from the mine 3557 wagons.  
Mineral quarried per borer per diem 2.15  
Average daily attendance of borers 120.08  
Average daily attendance of natives 173.69

The output and quality of the mineral now being raised is quite equal to that of the preceding division. At the western and eastern section there is no special change to advise; the points from which the old extraction is being made continue to maintain their respective favourable indications for both quantity and produce.

The gold troop was despatched on the 12th, taking 18 boxes, containing 53 bars, weighing in all 83,399.1 oits. = 9613.4 oits. troy. The above has been received, value \$3,300.

The following telegrams have been received:—  
On December 27, dated Rio, December 24—"Profit for the month (November), \$7000."

On December 31, dated Rio, December 29—"Produce eleven days (second division of December), 16,750 oits.; yield, 6.9 oits. per ton."  
On January 12, dated Rio, January 11—"Produce for the month (December), 45,500 oits.; yield, 17.63 oits.; yield, 6.9 oits. per ton."

DON PEDRO NORTH DEL RY (Gold).—Report for November: Produce from 2041 tons, dry weight, 3108 oits. = 1320.18s.; cost, including all general expenses, also cost of labour and materials, amounting to 322s. 6d., for erection of permanent pumping machinery, 2427.18s. 2d.

Telegram from Rio, dated Jan. 15: Produce for December, 4150 oits.

SANTA BARBARA.—Mr. Hilleke, Esq., Dec. 14: During November 1021 tons of mineral were stamped, yielding 8504 oits. per ton, or a total of 3578 oits. of gold, which valued at \$s. 6d. per oit. amounts to 15200.13s. as the estimated value of the produce for the month of November. The estimated working cost for the same period was at Exchange 254d., 104d., 10s., thus showing an estimated working profit of 4.6s. 3s. for November. The capital expenditure during the month for the erection of the new pulverising machine amounted to 37l. 8s. 9d. The total expenditure on this machine to date had been 191l. 11s. 11d. The quantity of ore raised during the month amounted to 1196 tons, of which 175 tons were rejected as refuse stone, and 1021 tons treated at the stamps. Average quantity of ore raised per borer for the month 29.5 tons.

PITAGUI (Gold).—Mr. Hilleke, Esq., Dec. 14: The drive of the adit has been carried on during November without any change taking place in the rock, which still continues hard and spare for quarrying. The meeting with this hard ground cannot altogether be considered unfavourable, as, owing to the large quantity of water, if softer ground prevailed more trouble and expense would probably be entailed. The distance driven for November was 3 fms. 3 ft., making a total length of 86 fms. 3 ft. 6 in. of the adit driven to Nov. 30.

RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: Week's run, \$105,000, from 1230 tons of ore; week's produce of refinery, \$0.00.

—Mr. Rickard, Dec. 28: I am glad to be able to report an improvement in the 200 main drift; since my last we have drifted 30 ft. in very good ore, and the end is still looking well. The western end of the 400 stop is very much improved; the ore is widening, at present it looks very well. The rise in the back of the 400 is up 90 ft. on the quartzite, it shows occasional stones of ore. The 500 cross cut is without change, still in limestone. The 600 drift has reached the quartzite, but no ore has been struck at this point. We are now drifting on the contact, where we expect to strike ore in a short distance. The 800 drift on the quartzite has been suspended, but work will be resumed shortly. The winze below the 900, on the

assure, is down 55 ft.; the ground is very favourable for sinking. By the end of January we shall have attained a depth of 100 ft. below the 900 ft. level. The furnaces are smelting their usual quantity of ore; both furnaces and machinery are in good working order.

SIERRA BUTTES (Gold).—Result of the working at the Pumas Eureka Mine for December: Total receipts, \$38,634; total California expenses, including cost of mining, milling, erection of new buildings, &c., \$19,262. The mills at the Sierra Buttes Mine were idle throughout December, owing to the continued failure of the water supply.

LONDON AND CALIFORNIA.—The clean-up for the month of December at the Original Amador Mine is estimated at \$7000.

MINERAL HILL.—Dec. 29: Queen Tunnel: The present end of the tunnel is unchanged—good limestone, with spots of quartz. During the past month we have driven 22 ft., making the new extension 78 ft. in all. During the past week I set a contract to two men to drive a cross-cut west of the present end of the tunnel, at \$15 per foot, price to cover costs. In the Star Mine (Queen Chamber) two men are prospecting towards the cave, on the same quartz ledge, which is yielding more or less ore. We are disappointed that the quartz and ore gave out in the cave, as at times it looked exceedingly promising, and being in new ground, and in the line of the channel of the western deposits, we had great faith in it, and our present workings at this part of the mine may yet be rewarded. The winze in the bottom of the Troy is commenced, and we hope it may be productive of good results; it is being sunk by two men at present. On the western slope two men are preparing to drive a shallow level in a piece of untried ground, as reported in my last.

JAVALI.—The directors have advised from their manager, dated Dec. 6. He states that owing to scarcity of water the engine had worked only 25 stamps during 24 days crushing 19.0 tons of quartz, yielding 517 oits. of gold, valued at 1300l. The expenditure had been 891l., including 24l. on capital account. Health of the establishment was good, and labour sufficient.

MALPASO.—W. S. Welton, Nov. 25: Mine: Run No. 40: During the last month the rain has been so great that the ditch and sluice have given us much trouble. This accounts for our only having been able to run 18.73 hours per day. Since my last we have had more rain, and about 18 slides on the ditch will prevent our being able to run until the 28th inst. All the work done at the new opening has been completely covered up with waste and trees from above that were carried down the sluice on the 23rd inst. The monitor has become very much worse, and a new stand-pipe had to be fitted to it, as the original one had become quite warm through in several parts. The gravel shows no change for the worse, and it appears to be only a question of running full time to be able to make good returns. The timber for the extension of the ditch is now nearly all cut, and this work I consider to have made fair progress. With our present gravel I believe our returns will enable us to prepare for running below without any difficulty, and after this, judging from the gravel being wheeled into the sluice, and former results with the same gravel with less than 200 inches of water, we may expect good returns for a long period.

ORIENTAL CONSOLIDATED.—W. White, Dec. 5: San Sebastian Mine: I enclose section. Stopped in high stops in the above mine during the past month 388 cubic varas. In going through some old workings in the east end of this stop we found a part of the manta had been left by the former workers on the north side of the lode, and which helped us in our returns, which are consequently greater than I could expect by the appearance of the mines when I wrote last. The lode here is still looking better than it did last month, but the manta is now chiefly taken away. We have driven in the shallow level 17 1/2 varas; here we have also gone through some good paying ground during the month; lode in present end 5 ft. wide, worth for gold 5 1/2 dwts. per ton. We have driven in during the month 15 1/2 varas; the lode has improved, now in present end 5 ft. wide, worth for gold 4 1/2 dwts. to the ton. The new ventilating rise is now communicated with the surface; rose here during the month 16 varas. Quartz raised during the month from the total drivings, stopings, &c., in this mine 1387 cars, or 1185 tons, worth on an average for gold 5 1/2 dwts. to the ton.—Eshella Mine: Here the mine is now clear, and both main level and tramroad repaired, and the mine put in regular working order. There is an arch of payable ground standing here in the back of the main level, on which I have commenced operations, and stopped from time of commencement 30 cubic varas, which produced 24 dwts. 24 oits. of quartz, worth on an average 1 1/2 dwts. to the ton. The lode here is large, and as it is now well paid to work, but is surrounded by a lot of old workings, and therefore I cannot expect that this ground can be worked long to any advantage. I have also set the main level here to drive this month. The lode in the present end is now poor, but I do not expect to find anything very rich left in sight in any of the mines that might have been easily taken away before, as the timbering was likely neglected when the mines were in poor necks of ground, as was San Sebastian on my arrival here, and after came together, as the cost of neglect was great to repair.—Machinery: San Doming. Mill: During the past month I have set a contract of \$500 to rise upon and complete the dam in San Benito Valley, as referred to in my last report. I have had also a large conduit 5 ft. high and 20 yards in length, all strongly timbered for an outlet of the water from the dam to the mill; also new launder put in for conveying the water over the low ground in the water-course; also had made new launders for taking away the tailings from the mill, and a strip of 130 yards in length for concentrating the same. Cleared about 400 yards of main water-course, and put flushes in same to drop for saving the water back at any time when there should be occasion to stop the stamps. I also have had the arrastras newly boarded over, and also by the sides, to prevent any grease falling into it that might do harm to the wheels. The large water-wheel has also had several new buckets and other repairs, and also some of the old buckets righted, and the general repairs to the stamps. I have got now also some new wagons made for bringing the quartz from the mine to the mill, and the old ones, which were in a very bad state repaired. The weather was very dry during November, only a few showers in the beginning of the month; consequently the water is very low, but if there was water we could not have done much more in consequence of the heads being so light. Total quartz treated during the past month 1089 tons, which produced 302 oits. of gold, or on an average 5 1/2 dwts. to the ton. We valued the gold at 800l.; total cost for November, 614l.; profit, 140l. The above cost includes 139l. charges for the monthly sheet for the 24 stamps, and 100l. for quicksilver for the stamps, and shall be glad to have six bottles from England as soon as possible.

CAPE COPPER.—Capt. Tonkin, Nov. 30: Ookiep: The ground in the 92, east from shaft, is chiefly quartz, and it shows a few spots of ore, but nothing to value. We continue to push this driving with vigour, in order to communicate with the eastern workings as quickly as possible. In the new shaft from surface there is no change since last report. In the early part of the month we started a winze (No. 26) below the 90. This sinking has now reached a depth of 14 ft. 10 in., and the ground has yielded well throughout. The present bottom is worth 4 tons of very rich ore per fathom. From the bottom of No. 25 winze we have carried out the 92 both north and south, and we are now prepared to drive east and west. The eastern level will be driven to intersect the productive ground gone below the 80, while the western one will open a communication with the shaft. The 80 east continues in unproductive ground. The 80 south-east has been very rich during the greater part of the month, worth at one time 12 tons of ore per fathom, but just now the end of the driving is in poor ground. In the 80, south from No. 21 winze, we have lately intersected a rich piece of ore ground, but the end did not prove very productive for any great length; however, the forebreast of the driving will still yield 2 1/2 tons of ore per fathom, and there is a chance of its again improving. The 80, south from No. 19 winze, has not undergone any favourable change during the month. No. 24 winze below the 68 is now 5 fms. deep, and throughout the sinking it has yielded remarkably well; its present value is 7 tons per fathom. No. 25 winze, which is situated about 11 fms. east of the flookan course in the 68, is also producing large quantities of rich ore. The 68, east from No. 13 winze, has lately been driven through ground of a kindly nature, and we have now put the men to cross-cut in the eastern extremity. The 48, east from No. 19 winze, is in poor and unproductive ground. The stopes throughout the mine have yielded well, and the ore-dressing department has shown good results.

SPECTACEL.—Capt. Tonkin, Capt. Ninnis, Nov. 26: We have started to drive from bottom of well below the 80, and the ground in the lower level is good throughout with copper ore, and at times it yields some good stones, but not enough to value. The 36, north on the flookan course, is in poor and unproductive looking ground, consequently we have suspended our explorations at that point, and put the men to drive south on the flookan course at the same depth. We have removed the men from the shaft below the old workings, as we consider our trial at that point to be thoroughly exhausted. We have not made much progress in driving the 27 towards Kelly's shaft, therefore, we have no change to notice.

THAL MINES.—Capt. Tonkin, Capt. Lanksbury, Nov. 15: The drivings in the 20 at Karolusberg, continue in poor and unproductive ground, and we consider that the trials in the bottom of the mine are nearly exhausted, and we have therefore suspended our operations in the lower workings, and put the men to carry out some further explorations in the adit level. At Nababep the 28 south-west is being driven on a vein about 7 ft. wide, which yields 2 tons of moderate quality copper ore per fathom. We shall open out the ground at this point as fast as possible, in order to prove whether it will soon be advisable to start the sinking of the shaft for another lift, or otherwise. We have lately sampled 17 tons of ore, averaging 25 1/2 per cent. humid assay, being the result of two months' working. The 20 at Narrap produces a small quantity of copper pyrites, but not enough to value. The shaft below the 5 at the trial mine, west of Ookiep, is in unproductive ground; we have now driven 19 ft. deep, and shall go to 19 ft. to the bottom.

RETURNS FOR NOVEMBER.—Ookiep, 970 tons of 34 per cent.; Spectacel, nil. Bills of Lading Received: 380 tons of ore per Glam; 9 tons per American; 54 tons per Dunrobin Castle; 490 tons per Ogmour; 300 tons per Dillwyn; 340 tons per Caradoc; and 60 tons per Nubian. Arrivals at Swansea: The Spartan and Glam. Sales of ore by public tender on Jan. 2, 500 tons at an average of 12s. 9/4d. per unit.

RHENISH CONSOLS.—Capt. Sweet, Jan. 12: Madonna Mine: You remember that in cross-cutting west, south of the shaft at the 50 metre level, we intersected a vein before cross-cutting the Rosebud lode, but it was not very well defined, and not very productive. This week we have put men to drive north on the same lode, and am glad to state that it has very much improved, and will afford 8 centners of ore per metre. It has a well-defined wall, but little underlie. I should not be surprised if this proved to be the same vein we have in the bottom of the shaft.

LIRNEBERG.—B. K. Roskilly, Jan. 14: Hadley's Engine Shaft: The lode in the 140 metre level below deep adit, south of shaft, 14 ft. wide, and yielding good stones of copper ore—a promising lode. In the back of this level the lode is worth 15l. per fathom for copper ore. The lode in the 120, south of shaft, is worth 25l. per fathom. The lode in the stopes in the back of this level for the part being carried is worth 15l. per fathom. In the 90, north of rise, the lode is worth 15l. per fathom for copper ore; here we are engaged in stripping down the side of the level on the north, and the lode appears to be getting in width. We have put the men hitherto engaged in the 90 and south to stop the back of this level, in which the lode is worth 30l. per fathom for copper ore. We were making capital progress in the dressing department, but through the inclemency of the weather, as we have had a very fall of snow, accompanied with hard frost, the dressing during the week has been very much interfered with. We have dressed and in the house about 90 tons of copper ore, but had the water continued favourable we should have had by this time at least 100 tons. Our machinery and pitwork are in good condition, and working well.

LUSITANIAN.—Jan. 8: Pabai: The trip-plat in the 200, at Taylor's engine-shaft, is complete, and the solar laid in its place. The lode in the 200, below the 190, west of Taylor's engine shaft, is worth 1 ton per fathom. The lode in the 20, east of Taylor's, is worth 1 ton per fathom. The lode in the 200, west of Taylor's, is worth 2 1/2 tons per fathom. The lode in the 190, west of Taylor's, is 2 ft. wide, composed of quartz and a little ore on the north wall of the lode, but not enough to value—suspended.—Stopes on Basto's Lode: Below the 190, west of No. 109 winze, the lode is worth 1 1/2 ton per fathom. Below the 200, east of Taylor's, the lode is worth 1 1/2 ton per fathom. Above the 190, west of No. 100 winze, the lode is worth 1 ton per fathom. Above the 170, west of No. 101 winze, the lode is worth 1 1/2 ton per fathom. Below the 170, west of No. 98 winze, the lode is poor—suspended. Below the 190, west of No. 109 winze, the lode is worth 2 tons per

fathom. Above the 190, west of No. 101 winze, the lode is worth 1 ton per fathom. Above the 170, west of No. 101 winze, the lode is worth 1 1/2 ton per fathom. Below the 170, west of No. 98 winze, the lode is poor—suspended. Below the 190, west of No. 109 winze, the lode is worth 2 tons per



**Porter's Governor for Stationary Engines. Also Governor on the same principle adapted for Marine Engines.**



## WATSON BROTHERS' MINING CIRCULAR.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement, which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the *Journal* on the Clementina Mine.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and a state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fortnightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

WATSON BROTHERS,  
MINEOWNERS, STOCK AND SHARE DEALERS, &c.,  
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

A correspondent of the *Mining Journal* evolved the startling theory on Saturday that "it is a rule, almost without exception, that in the vicinity of a rich mine no other rich ore deposits are ever found." If this were true there would be an end to all mining adventure, but the whole history of mining refutes it.

The mines in the Redruth, Illogan, and Camborne districts have yielded profits of millions of pounds sterling in continuous veins and for miles in length. Some of them have been worked for over a century. Take Dolcoath, formerly a rich copper, now the richest tin mine probably in the world, and the others on its run—Cook's Kitchen, Tincroft, Carn Brea! Take the run of the Setons, the run of the Roskare, the run of the Croftys, the run of Consolidated and United! Forty years ago Tresavean was the richest copper mine in Cornwall (we remember its shares at 1000, each), and as it was in a basin of granite it was thought to be an isolated mine; but Trethellan, Treviskey and Barrier, and others adjoining, paid large profits to the shareholders. Let us come nearer to the present day, to the discovery of Basset—or, as it was first called, South Basset—which from 1850 to 1853 paid 266,880l. in dividends to the shareholders. Then came Buller and the other adjoining mines of North Basset, West Basset, East Basset, and South Frances. Buller from 1850 to 1861 paid 242,112l. in dividends; we bought shares as high as 1200l. each, and for some years the dividends were over 200l. per share. North Basset from 1850 to 1858 paid 65,000l. profit. West Basset from 1854 to 1863 paid 147,300l. profit. East Basset—a small sett adjoining Basset—was thought so little of by the public that we bought largely of the shares (upon sound advice) at 10s., and they soon rose to 300l. each, and from 1859 to 1863 the dividends paid amounted to 58,368l. South Frances from 1850 to 1863 paid 40,452l. profit, besides getting involved in heavy costs with West Basset as to the boundary of the setts. The mines of this group, then so rich for copper, are now chiefly worked for tin, and the great flat lode which passes through West Basset, South Frances, West Frances, and Wheal Grenville is the productive lode of South Condurrow.

In regard to Devon Great Consols we may observe that the adjoining mines of Wheal Crebor, Bedford United, and others had returned copper ore exceeding the value of 200,000l. before Devon Consols was discovered. Again, take South Caradon, the first mine discovered on Caradon Hill, and to which we alluded some weeks ago. West Caradon adjoining was next discovered, and from 1850 to 1863 paid 110,926l. in dividends. East Caradon from 1860 to 1863 paid 49,757l. profit. In this district also was the continuous run of rich silver-lead mines of Trelawney, Mary Ann, &c. We might go on enumerating facts, but have said more than enough to upset the absurd theory advanced.

GLENCERRY.—Our remarks of last week were written and in type before the meeting of North Laxey was held. The amalgamation we recommended to the attention of Capt. Rowe, the directors, and shareholders could then have been arranged so far as the obtaining of this sett was concerned, but since the meeting Capt. Rowe has declined to entertain the matter any further.

VAN never looked better we are told; but the shares have been affected by the price of lead, the dividend of 12s. instead of 16s. as expected, and the general dullness of the market. A rise in lead would produce a change for the better.

SOUTH ROMAN GRAVELS.—The agent's report of October last led us to expect an early discovery, and knowing the splendid situation of the mine, we looked for something good. On Oct. 5, in his weekly report, he wrote—"I am glad to inform you that there is a great change taking place for the better in the 45 west. We are now into splendid mineral ground, analogous to the Roman Gravels and Tankerville Mines. There is a strong lode here, and last night we met a branch nicely spotted with ore, with every appearance to improve." Soon after this the 45 east began to show lead and blende. Of late the reports have been so different that the directors determined to have the mine inspected, and a copy of the report when received will, we presume, be sent to the shareholders.

D'ERESBY MOUNTAIN.—No change in the report here. Lode still worth 3 tons of lead per fathom.

When our correspondent can assure us that there will not be war, then will we tell him "what to buy and what to avoid." While the present uncertainty exists, it is useless to recommend, or to attempt to support, markets. Those who attempt to force sales just now must take what they can get. With peace assured, trade would revive, metals would improve, and all good shares become in demand.

SATURDAY, JAN. 12.—Market continues very inactive, and the following are for the most part nominal quotations:—Carn Brea, 40 to 45; Cook's Kitchen, 13 to 25; Devon Great Consols, 3 to 3½; Dolcoath, 33 to 35; East Van, 2½ to 3½; Glenroy Lead, 15s. to 20s.; Grogwinion, 3½ to 4½; Great Laxey, 2½ to 3½; Herodfoot, 10s. to 10½; Leadhills, 4 to 4½; North Laxey, 8s. to 8½; Parys Mountain, 8s. 6d. to 9s. 6d.; Penrithall, 4s. to 4½; Roman Gravels, 8s. to 8½; Rookhope Lead, 17s. 6d. to 20s.; South Condurrow, 9 to 9½; Tankerville, 4½ to 4¾; Tincroft, 12 to 14; Van, 20 to 21; West Chiverton, 13 to 14; West Pateley Bridge, 2½ to 3½; West Tolgus, 7s. to 8s.; Wheal Agar, 4 to 4½; Wheal Grenville, 2½ to 3½; Wye Valley, 2 to 2½; West Wye Valley, 3½ to 4; Chertsey, 12s. to 14s.; Eberhardt, 7½ to 7¾; Flagstaff, 1 to 1½; New Quebrada, 2½ to 3½; Penrithall, 4s. to 4½; Richmond, 8½ to 9½.

MONDAY, JAN. 14.—Market again quiet. D'Erresby Mountain, 50 to 60; Van, 20 to 21; Roman Gravels, 8s. to 8½; West Chiverton, 13 to 14; Glenroy Lead, 15s. to 20s.; Great Laxey, 2½ to 3½; Leadhills, 4 to 4½; Tankerville, 4½ to 4¾; Rookhope Lead, 16s. 6d. to 20s.; South Condurrow, 9 to 9½; Carn Brea, 40 to 45; Tincroft, 12 to 14; Parys Mountain, 8s. 6d. to 9s. 6d.; Eberhardt, 7½ to 7¾; Richmond, 8½ to 9½.

TUESDAY, JAN. 15.—There is very little doing, and prices are about the same as yesterday.

WEDNESDAY, JAN. 16.—Dealers busy with the settlement, and prices merely nominal. Carn Brea, 40 to 45; Cook's Kitchen, 13 to 25; Devon Consols, 3 to 3½; Dolcoath, 33 to 35; D'Erresby Mountain, 50 to 60; East Van, 2½ to 3½; Glenroy Lead, 15s. 6d. to 17s. 6d.; Grogwinion, 3½ to 4½; Great Laxey, 2½ to 3½; Herodfoot, 10s. 6d. to 10½; Leadhills, 4 to 4½; North Laxey, 8s. to 8½; Parys Mountain, 8s. 6d. to 9s. 6d.; Penrithall, 4s. 6d. to 4½; Roman Gravels, 8s. to 8½; Rookhope Lead, 17s. 6d. to 20s.; South Condurrow, 9 to 9½; Tankerville, 4½ to 4¾; Tincroft, 12 to 14; Van, 20 to 21; West Chiverton, 13 to 14; West Pateley Bridge, 2½ to 3½; West Tolgus, 7s. to 8s.; Wheal Agar, 4 to 4½; Wheal Grenville, 2½ to 3½; Wye Valley, 2 to 2½; West Wye Valley, 3½ to 4; Chertsey, 12s. to 14s.; Eberhardt, 7½ to 7¾; Flagstaff, 1 to 1½; New Quebrada, 2½ to 3½; Penrithall, 4s. to 4½; Richmond, 8½ to 9½.

vile, 4½ to 4¾; Tincroft, 12 to 14; Van, 20 to 21; West Chiverton, 13 to 14; West Pateley Bridge, 2½ to 3½; West Tolgus, 7s. to 8s.; Wheal Agar, 4 to 4½; Grenville, 2 to 2½; Wye Valley, 2 to 2½; West Wye Valley, 3½ to 4; Chertsey, 12s. to 14s.; Eberhardt, 7½ to 7¾; Flagstaff, 1 to 1½; New Quebrada, 2½ to 3½; Penrithall, 4s. to 4½; Richmond, 8½ to 9½.

THURSDAY, JAN. 17.—Market very dull, and quotations are merely nominal. D'Erresby Mountain, 50 to 60; Van, 20 to 21; Great Laxey, 2½ to 3½; Leadhills, 4 to 4½; Grogwinion, 3½ to 4½; Tankerville, 4½ to 4¾; Roman Gravels, 8s. to 8½; Rookhope Lead, 17s. 6d. to 20s.; Dolcoath, 33 to 35; Tincroft, 12 to 14; Azar, 4 to 4½; Rookhope Lead, 17s. 6d. to 20s.; North Laxey, 8s. to 8½; Parys Mountain, 8s. 6d. to 9s. 6d.; Glenroy Lead, 15s. 6d. to 17s. 6d.; Richmond, 8½ to 9½; Eberhardt, 7½ to 7¾.

FRIDAY, JAN. 18.—Market continues very quiet, with little alteration in yesterday's prices.

## Mining Correspondence.

## BRITISH MINES.

ABERDAUNANT.—S. Toy, Jan. 16: The cross-cut at the 15 is now driven north towards the lode 5 fms. 5 ft. We have met with a hard troublesome floor of ground this week, and with the increase of water from the recent heavy rains our progress in driving has not been so good as last week, but we are hoping that this will not continue long, and that we shall be able to make better progress shortly.

ASHETON.—John Craze, Jan. 17: We have set the following tribute pitches since our last:—Two men in the back of the 20, south on north and south lode at 6l. per ton. Two men in the back of the 28, south of Gundry shaft, at 7l. per ton. No other change in any part of the mine. We purpose sending out samples tomorrow for the sale of 25 tons of lead ore on the 26th instant.

BEDFORD UNITED.—R. Goldworthy, Wm. Phillips, Jan. 17: The men have made good progress in taking out the ground for tramroad, which we hope will be completed by the end of the month. No lode has been taken down in the 138 east since last report. The lode in the winze, sinking in the bottom of the 127 east, still maintains its former size and value—9l. per fathom. The stopes are producing their usual quantity of ore.

BETWIS-Y-COED.—H. T. Haley, Jan. 14: The shaftmen have now made a fair start in sinking at 10l. per fathom. As they are sinking under the lode they have not broken much of it, but from what I can see there is a fine looking lode, and will produce good ore. I will advise you as to its value when taken down. In the 20 the lode is improved, and will produce 35 cwt. of lead per fathom, and bid fair for further improvement. The deep adit is without much change, other than that the ground is a little easier for driving. In the shallow adit the lode is getting larger, and letting out water freely, so we may expect an improvement.

BODIDRIS.—H. Hotchkiss, Jan. 16: The following is the setting report for the ensuing month:—The 70 yard level to drive west on the middle lode, by two men, at 3l. 10s. per fathom; the lode in this end is well defined, and contains good specimens of blende. The 60 yard level cross-cut to drive south, by four men, at 3l. per fathom; no important change here since my last report. The 45 yard level, and 20 fathoms east of shaft, to rise in the back of this level, by two men, at 6l. 10s. per fathom; the lode here is large and kindly—producing saving work. A winze to sink in the bottom of this level, by two men, at 9l. per fathom; the lode here is much the same as for some time past. A cross-cut to drive north to intersect the Creiglog lode let to four men, at 10l. per fathom; no change in this end calling for remarks. The above prices include the delivery of stuff to surface.

CAMLIAN MINES.—ESGAR FRATH.—Capt. Thomas Glanville, Jan. 17: Eastern Shaft. The 23 east of shaft is driving, and is producing 2 tons of rich copper ore per fathom. The 23 west of shaft, yielding 2 tons of copper ore per fathom, and a large mixture of lead. In cutting the pit we are breaking some good stones of copper ore. We shall have completed this operation on Saturday next, and shall commence to sink the shaft below the 23 on the Monday following. Since the post has left us our dressing operations have been going on with their usual regularity.

CLEMENTINA.—William Bennetts, Jan. 16: The lode in the 34 east is looking much more promising to day than it has been for some time past. In the 34 east the lode at present is pinched up very small, but I believe, by the appearance of the end to day, the lode will shortly open up again, and be productive. The lode in the winze sinking in the bottom of the 25 on the junction of the lodes is worth 1 ton of lead per fathom.

CWMYSTWTH.—Jan. 15: Gill's upper level is looking more promising than it has done for the last 2 fathoms driving, as the lode in the end is 1 ft. wide, composed of a strong clay-slate, with nice spots of lead ore, and it appears to be opening out—in fact, we can reasonably expect it, as there is a nice ore lode in the winze just over. The lode in the winze sinking under Mitchell's level west is 2 ft. wide, worth 14 cwt. of lead ore per fathom, or 21 cwt. for the length of winze, 9 ft. On the 23 east of shaft, the lode is getting fair wages. The rock boring machinery is still in fair working order, and the drive for the last week was 10 ft. but, of course, the ground is not so hard as we have had it, although still very stiff, but jointly. During the past fortnight 14 tons 7 cwt. of lead ore has been weighed into the bin.

DE BROKE.—J. Phillips, Jan. 16: The 45, east of Wilson's, is now 10 fathoms from shaft, and is looking well, lode 5 ft. wide, and worth from 15l. to 18l. per fathom. This level is only a short distance from the eastern run of ore ground, there being every probability that they form one continuous deposit in depth. In the 45 west there is more lead ore and blende coming in; the lode is wide and of congenial nature for mineral. There is nothing new to report in the 35 east, as no lode has been taken down for the week. The stopes are yielding their usual quantity of lead ore, and fair progress has already been made in dressing for the next month's sampling.

D'ERESBY MOUNTAIN.—William Bennetts, Jan. 16: There is no change calling for remark since last week's report. The Gorse lode still looks well, worth 3 tons of lead per fathom. Saturday next being our setting day, a full report of both this and Clementina Mines shall be sent you next week.

DENBIGHSHIRE CONSOLIDATED.—E. Price, A. Francis, Jan. 17: We are delighted to inform you that the much desired and long-anticipated amalgamation which has been at work for some time past, has at last been effected. The difficulties we had to encounter were very great; in the first place the ventilation was extremely bad, so bad indeed that it was with the greatest difficulty that the candles could be got to burn. In spite of this the men went to work with a will. We drilled holes from both sides 40 in. in length, into which we put ten charges of dynamite, and these had the desired effect. To give you some idea that we have not been idle, we can state that during the last week there have been about 140 blasts, and when the defective ventilation has been taken into account, you can readily understand that the extraordinary efforts have been made, and we are but stating the truth when we inform you that we, and especially the men who have been at work here, have been making the most efficient use of the consequences of breathing the foul air. Then, again, we have had the water difficulty to contend with. Twice has the water from the old workings broken in upon us, filling the levels and coming halfway up the sump. All this had to be wound and pumped up the sump, and of course greatly retarded our progress. Our troubles now, however, are over, the western end of the mine is splendidly ventilated, and so are the workings at Parry's. All our stuff obtained from the latter will be taken to our lower level, and so also will the water, and we shall thus be able to dispense with the engine, engine man, two landers, three men pumping from bottom of sump, two fan boys, not to mention the saving in whirling and filling coal, oil, &c.

DEVON GREAT CONSOLS.—Jan. 18: There is nothing new in the report from the mines this week. Our sale on Friday last, 229 tons, realised 2355l.

EAST CRYVEN MOOR.—D. Williams, Jan. 17: The vein in the 30 west of the new shaft from surface, is 4 ft. wide, composed chiefly of spar, gossan, and good lead ore, worth 15 cwt. per fathom. In cross cutting south in the eastern part of the mine from the 56 to intersect the new vein, we have just cut a cross-pitch about 1 ft. 2 in. wide, filled with spar and spots of ore. I hope to reach the vein in a fortnight. The Harrogate vein, in the 56 west, is opening out most satisfactorily as we approach the run of ore ground going down in the soles of the 56.

EAST DARREN.—Jan. 16: In sinking a winze under the 68, on the south lode, the lode is large, containing spots of lead ore, and we hope for an improvement. In driving the 80 east of cross-cut, on the south lode, the lode is 2 ft. wide, yielding fully 1½ ton of lead ore per fathom. In driving the 80 west of cross-cut, on the south lode, the lode is 3 ft. wide, looking promising, and yielding saving work for dressing. In driving the 80 west of the same, on the north part, the lode at present is unproductive, being in a cross-course. In stopping over the same the lode is 3 ft. wide, yielding from 8 to 10 cwt. of lead ore per fathom—tribute ground. In the pitch under the 118, and 120 fms. east of Taylor's shaft, the lode is 4 ft. wide, producing 1 ton of lead ore per fathom. In the two pitches under the 104, 140 and 120 fms. east of Taylor's shaft, the lode is from 6 to 8 ft. wide, producing on an average 1 ton of lead ore per fathom. In the pitch under the 80, 130 fms. east of Taylor's shaft, the lode is 9 ft. wide, yielding for the width 15 cwt. of lead ore per fathom. In a pitch over the 50, west of cross-cut, on the south lode, the lode is large, worth 1 ton of lead ore per fathom, but suspended for the present. The shaftmen are now engaged in repairing the adit level and putting in a dam to the east of Skinner's shaft to raise the water coming from surface in time of heavy rains to the shallow adit level, so as to prevent the same from getting into our lower workings, which we hope to resume in a few days. Our new engine is in good order. A satisfactory progress is being made towards another sampling.

EAST VAN.—Wm. Williams, Jan. 17: Tempest shaft will be deep enough to commence crossing in the 55 about this week. There is nothing to report as yet from the cross-cut in the end of the 25 west. There is no change worthy of note in the mine.

FRANK MILLS.—James Rowe, N. Addams, Jan. 17: Setting Report: To rise in the back of the 100, north of engine shaft on the west lode, by six men, at 4l. per fathom; lode composed of sphatose iron ore, containing a little lead. A winze to sink in the bottom of the 84, north of engine shaft on the west lode, to communicate with the above rise, by four men, at 4l. per fathom; we hope to have this section of ground in about seven weeks—when completed we shall resume the driving of the 84 and 100 north of this point. A tribute pitch in the bottom of the 100, north of engine shaft on the east lode, by two men, at 4l. per ton for lead ore. Three tribute pitches are being worked in the back of Exmouth adit level, by six men, at 4l. per ton for lead ore. The masons have completed the building of the engine house, crusher-house, &c., for treating the large amount of halms on the mine. We have fixed the engine, and are pushing on with the crusher and dressing appliances as fast as possible. No time will be lost in getting this machinery at work, from which we are sure to get large returns.

GAWTON COPPER.—G. Rowe, G. Rowe, Jan. 12: The lode in the winze sinking below the 105 is going down over 10 ft. wide, producing copper ore and munda to the value of 28l. per fathom. We have interested the north wall of the lode in the 82 cross-cut south, which is showing a very kindly appearance, spotted with munda and ore. It will occupy several days to cut into the lode before we shall be in a position to describe its character and value. The tribute department is improved during the past week.

GOGNAN.—Jan. 14: The western shaft below the 130 fathom level has been sunk during the past month 3 ft. 8 in. The 130 fathom level, east of western shaft, has been extended 3 fms. 2 ft.; lode in present end improving, and producing good saving work, with indications for further improvement. The winze below the 120, in advance of the 180, has been sunk 2 fms.; lode here worth 10 to 12 cwt. of ore per fathom. The 130, west of the western shaft, has been driven 8 ft. 9 in. The 100, east of Bryn Pica shaft, has been extended 8 ft. 9 in. The stoping of the ore ground over the 100 on the outwork has been stopped, and the following bargains have been set at tribute:—A pitch over the 100 east and west of

western shaft, to eight men, at 140s. per ton; lode worth ½ ton of ore per fathom. A pitch over the 120, west of western shaft, to four men, at 130s. per ton; lode yielding 10 to 12 cwt. of ore per fathom. A pitch over the 120, 65 fms. west of Bryn Pica shaft, to eight men, at 130s. per ton; lode producing 10 cwt. of ore per fathom. A pitch over the same level, 35 fms. west of Bryn Pica shaft, has been offered to eight men, at 160s. per ton, but refused; however we hope to get a party to take it in the course of a few days; lode worth ½ ton of ore per fathom. The three tribute pitches on side branches at different points in the mines are producing on an average 10 cwt. of ore per fathom. At surface all things are going on regularly, and machinery working well. Samples of 44 tons of good quality silver-lead ore were sent out yesterday, for sale on the 28th inst.

GREAT DYLIFFE.—Evan Evans, Jan. 16: At the 132, Dylyffe lode, we are stripping the lode, and it looks better than anything we have had in this level for some months, and is worth 1 ton per fathom. At the 95 east we have 14 men stopping, the ground being worth about 1 ton per fathom. The lode in this end looks well; we shall resume the driving of this level as soon as possible. The new lode in the driving in the bottom of the winze looks very well; all we drove on it is in good paying ground. In the winze from surface on the same lode, we have a very nice lode, and some good stones of lead ore mixed with strong blende have been taken from it, which appears very promising. Below the 95, east of Bradford shaft, we have 10 men stopping on the ore ground we referred to last week, and about the end of the present we shall bring some of it to the dressing floors. The cross-cut at the 105, east of Bradford shaft, is progressing favourably, and we shall be in the lode about the end of the week.

Evan Evans, Jan. 17: We have sold to-day 60 tons of lead ore, to Mr. Adam Eytan, at 11l. 10s. per ton, realising 705l.

GREAT RETALLACK.—J. Harris, Jan. 12: The lode in the 63 west is without change since last reported. In the 53 east the lode is yielding good stones of blende, and looking very promising for an early improvement. The lode in the winze sinking below the 40 is producing good stones of blende, worth 5 cwt. per fathom. The pitches throughout the mine are looking better upon the whole than they were a week ago.

KINGSTON DOWN.—T. Richards, Jan. 17: Bailey's Shaft: In the 173 east the lode continues its large and masterly size; the portion being carried is from 5 to 6 ft. wide, of very great promise, and is gradually improving, being now worth 15l. per fathom, and I am of the same opinion as heretofore—that we are getting near a very valuable course of ore. In the stopes in the back of the 160, east of Nicholl's winze, the lode is worth 4 tons of ore, or 12l. per fathom. There is no material change in any other part of the mine.

HOLMBUSH.—H. Bennett, Jan. 17: The shaftmen are engaged dropping the pumps below the 90, and we are in hopes of soon reaching the 100. The 60, on the lead lode, has improved in appearance, and the ground is more favourable for the production of lead, there being a greater quantity of fluor-spar than we have ever seen in this end before. All our other outwork and tribute bargains remain without any change since last reported on.

KINGSTON CONSOLS.—W. Hancock, James Chynoweth, Jan. 14: In the 40 end, west of the engine-shaft, we have no north or south wall of the lode, being carrying about 8 ft. of it, producing from 10 to 15 cwt. of lead per fathom, and perfectly free from blende. Set to drive by six men (the shaftmen), at 6l. per fm. Preparations should at once be made to sink the shaft below this level. The 30 to drive west of the shaft, by four men for two months, at 2l. per fathom; producing about ½ ton of blende and 3 cwt. of lead per fathom. No. 1 winze to sink below the level, by four men, to communicate to the 40, at 4l. per fathom; the one bearing part of the lode will not be taken down until communication is effected, No. 2 winze to sink below the level, by two men for two months, at 2l. per fathom; producing saving work, and this we think will soon improve. Four stopes in the back of this level, by 12 men for two months, at 20s. per fathom; producing in the aggregate about 4 tons of blende and 20 cwt. of lead. The 18 to drive west of the shaft, by two men for two months, at 90s. per fathom; the lode is about 4 ft. wide, of a very kindly appearance, and producing occasional good stones of blende and lead. No. 1 stopes in the back of this level, by two men for two months, at 35s. per fathom; producing ½ ton of blende and about 3 cwt. of lead per fm. No. 2 ditto, by two men for two months, at 20s. per fathom; producing ½ ton of blende and 3 cwt. of lead per fm. Our last sale of ores realised 277l. 18s. 6d. This would have been more had it not been for an accident to the crane.

KIT HILL TUNNEL.—H. Bennett, Jan. 17: South End: The tunnel to drive north, by six men, at 2l. 10s. per fathom; we have an increase of water at this point, but no other change. To drive west of the tunnel on the silver lode, by four men, at 1l. 18s. per fathom; the lode is 15 in. wide, composed of flooan, iron, sulphur munda, and a little silver, and presenting a splendid appearance. To drive north of the cutting, south of the tunnel, by six men, at 2l. per fathom; our object in driving at this point is to intersect every lode that may be to the south of the tunnel. North End: At this point we have commenced the tunnel by an open cutting, which has been extended about 5 fathoms south, and we have come on what I think to be the back of a large lode. In order to prove this I have put the men to bring in another stopes, which will enable us to see the lode about 6 ft. deeper. I hope to be able to say more about it in my next report.

LADYWELL.—Arthur Waters, Jan. 17: The 16, south of engine shaft, is in a strong, kindly lode, yielding stones of ore. This end is 35 fms. behind the adit end. This latter end is now into a wide, soft lode, with solid lumps of ore in the gossan. The stopes in the roof of the adit, just behind the end, is working at 20s. per ton. The 20, above adit, is being driven south of new air-shaft. The men have finished cutting plat in this shaft, and have to-day resumed sinking below the said 20 fathom level. We have to-day sampled 20 tons of lead ore, for sale next week.

LEADHILLS.—A. Waters, Jan. 17: Brown Mine: The 73, south of Glenzonia shaft, by four men, at 6l. 15s. per fathom, and 5s. per ton; lode of a kindly character, and yielding stones of ore. The 73 to go north of shaft, by four men, at 5l. 10s. per fathom, and 5s. per ton; lode looks like yielding ore shortly. The level between the 60 and 45, to go south of ladder winze, by four men, at 3l. 15s. per fathom, and 1s. 6d. per ton; the lode is worth 22 cwt. per fathom. The stopes in the bottom of the 45, north of shaft, by four men, at 40s. per fathom, and 20s. per ton; lode worth 18 cwt. per fathom. The stopes in the bottom of the 30 north, by four men, at 40s. per fathom, and 20s. per ton, worth 3½ ton per fathom. The 30 cross-cut, east towards main part of the lode, by four men, at 10l. per fathom. It will take a cross-cut of about 10 fathoms to reach the side level. The rise in the 20 north, on the main lode, to go up towards Moffat's winze, by four men, at 6l. per fathom; high cross 2 fathoms long, and 10s. per ton; lode worth 12 cwt. per fathom. The stopes in the back of the 20 north, by four men, at 50s. per fathom, and 20s. per ton; lode worth 16 cwt. per fathom. To drive south from the bottom of Moffat's winze (now 11 fms. 2 ft. 3 in. below Gripp's adit) to prepare for sinking deeper, by four men, at 7l. per fathom, and 5s. per ton; the lode in both ends of said winze, from top to 8 fathoms deep, is worth from 1½ to 2 tons of ore, north of cross-cut, and 20s. per ton, worth 3½ ton per fathom, while the said winze is holed to the level mentioned above, some good stopes will be available. Gripp's adit to drive north of shaft, by four men, at 6l. 10s. per fathom, and 1l. 10s. per ton; lode worth 8 cwt. per fathom, and improving. The stopes in the back of the adit north, by four men, at 60s. per fathom, and 20s. per ton; lode worth 20 cwt. per fathom. The pitch in the back of Gripp's, south of shaft, by five men, at 6l. per ton. Muir's cross-cut to drive west towards the side lode, by four men, at 8l. 5s. per fathom.—Katherine Vein: The stopes in the back of Gripp's, south of Muir's cross-cut, by two men, at 20s. per fathom, and 0s. per ton; lode of a kindly character, and yielding stones of ore. The stopes in the back of Muir's cross-cut, by four men, at 40s. per fathom, and 20s. per ton; lode worth 18 cwt. per fathom. Gripp's adit, to drive north of shaft, by four men, at 8l. 5s. per fathom, and 1l. 10s. per ton; lode worth 8 cwt. per fathom. Muir's cross-cut, by four men, at 8l. 5s. per fathom, and 1l. 10s. per ton; lode worth 8 cwt. per fathom. We expect to hole this end to Gripp's level, north of Jeffrey's cross-cut, by end of present month. The stopes in the back of the 10, north of No. 2 winze, by four men, at 7s. per ton; lode worth 11 tons per fathom. No. 2 stopes, north of winze, by four men, at 15s. per fathom, and 7s. per ton; lode worth 6 tons per fathom.—Jeffrey's Lode: Gripp's adit, west of Raik vein, by four men, at 6l. 10s. per fathom, and 10s. per ton; lode worth 5 cwt. per fathom, and improving. The said lode (Jeffrey's) was, it is said, very productive in the old mine just west of where our adit end now is, and I am told that it will be about 12 to 15 fathoms deeper than the bottom of our adit, hence we are looking out for a great improvement as the above named and advanced. No. 1 stopes, in back of the adit west, by four men, at 57s. 6d. per fathom and 20s. per ton, worth 20 cwt. per fathom. No. 2 stopes, by four men, at 57s. per fathom and 20s. per ton; lode worth 16 cwt. per fathom. Watson's shaft from surface, on old Raik Mine, by six men, at 18l. per fathom; present depth 26 fms. 4 ft. 6 in.—Glen Ea Vein: The adit cross-cut towards the lode, by four men, at 60s. per fm. The new engine and crusher, with impeller, are working at Reid's shaft, and it is calculated that 20 tons of clean ore daily will be put into the bin from the impeller. The new flues and stack at the smelting houses are now connected to the furnaces, and a great improvement in every respect has taken place. The returns for the six months ending Dec. 31, 1877, are written in the ore book as being 4400 tons, but with so many hundred tons of undressed ore on the mine, as well as accumulations of ragging from the jigger sieves, and large sluice heaps on the floors, it is no easy matter to correctly estimate the stock of ore on hand. Having the new floors at Reid's shaft, and impeller, chat mill, and new round buddle at work on the lower dressing floors, no hindrance to the dressing shall now occur.



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\* With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Original Correspondence: Rock-Boring Machinery; Ingersoll Rock Drill (J. C. Mackay); Diamond Fuel Company; Cape Copper Company; Richmond Mining Company; Richmond Mine; Flagstaff Mine; Flagstaff Silver Mining Company; Huitfall Lead and Blende Mines (M. F. Dorrner); Home Industry—National Wealth (T. Vosper); The Blende Trade; Llanrwst Lead Mine (R. Knapp); The Llanrwst Lead Mine (M. Boudry); The Yorkshire Mine, Pateley Bridge (S. Simpson); Rookhope Mine; Half-Yearly British Mining Share List (E. Ashmead), &c.

\* The TITLE-PAGE and INDEX to the FORTY-SEVENTH VOLUME is also given with this week's Journal.

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## The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, JAN. 18, 1878.									
IRON.		2 s. d.	1 s. d.	2 s. d.	1 s. d.	TIN.		2 s. d.	1 s. d.
Fig. 600, f.o.b. Clyde.		2 10 0	2 10 0	2 10 0	2 10 0	English, ingot, f.o.b.		68 10 0	69 0 0
" Scotch, all No. 1.		2 10 0	2 10 0	2 10 0	2 10 0	" bars		69 10 0	70 0 0
Bars, Welsh, f.o.b. Wales.		5 0 0	5 0 0	5 0 0	5 0 0	" refined		71 0 0	—
" In London.		5 15 0	5 0 0	5 0 0	5 0 0	Australian		63 15 0	64 0 0
" Stafford.		7 0 0	7 0 0	7 0 0	7 0 0	Banca		70 0 0	—
" In Tyne or Tees		5 10 0	5 10 0	5 10 0	5 10 0	Straits		64 0 0	—
" Swedish, London		9 15 0	10 0 0	10 0 0	10 0 0	COPPER.			
Ralls, Welsh, at works.		5 0 0	5 0 0	5 0 0	5 0 0	Tough cake and ingot.		68 0 0	69 0 0
Sheets, Staff., in London		8 15 0	9 0 0	9 0 0	9 0 0	Best selected		70 0 0	70 10 0
Plates, Staff., in London		7 0 0	7 0 0	7 0 0	7 0 0	Sheets and sheathing		75 0 0	75 10 0
Hoops, Staff.		7 15 0	7 15 0	7 15 0	7 15 0	Flat Bottoms		78 0 0	—
Nail rods, Staff. in Lon.		7 0 0	7 0 0	7 0 0	7 0 0	Wallaroo		75 10 0	75 15 0
STEEL.						Burra, or P.O.C.		74 0 0	—
English, spring		14 0 0	15 0 0	15 0 0	15 0 0	Other bars		74 0 0	—
" cast		16 0 0	16 0 0	16 0 0	16 0 0	Chili bars, g.o.b. nom.		65 10 0	66 0 0
Swedish, f.o.b.		17 0 0	17 0 0	17 0 0	17 0 0	PHOSPHOR BRONZE.			
" f.o.b. Lon.		17 0 0	17 0 0	17 0 0	17 0 0	Bearing metal		2112 0 0	—
LEAD.						Other alloys		2190 0 0	140 0 0
English, pig, common		19 0 0	19 0 0	19 0 0	19 0 0	BRASS.			
" " L.B.		19 0 0	19 0 0	19 0 0	19 0 0	Wire		8 1/2 d.	—
" " W.B.		20 0 0	20 0 0	20 0 0	20 0 0	Tubes		10 1/2 d.	—
" sheet and bar		20 0 0	20 0 0	20 0 0	20 0 0	Sheets		9 1/2 d.	—
" pipe		20 10 0	20 10 0	20 10 0	20 10 0	Yel. met. sheath. & sheets		6 1/2 d.	7 d.
" red		22 0 0	22 0 0	22 0 0	22 0 0	Nails composition		8 1/2 d.	9 d.
" white		27 0 0	27 0 0	27 0 0	27 0 0	TIN-PLATES.*			
" patent shot		24 0 0	24 0 0	24 0 0	24 0 0	Charcoal, lat quality		1 0 0	1 10
Spanish		18 10 0	18 10 0	18 10 0	18 10 0	" 2nd quality		0 18 0	1 0 0
NICKEL.						Coke, 1st quality		0 18 0	—
Metal, per cent.		19 0 0	19 0 0	19 0 0	19 0 0	" 2nd quality		0 17 0	—
Ore, 10 per cent. per ton		25 0 0	25 0 0	25 0 0	25 0 0	Black		per ton	16 0 0
QUICKSILVER.						Canada, Staff. or Gla.		11 10 0	12 0 0
Flasks of 75 lbs., ware.		7 5 0	—	—	—	at Liverpool		11 10 0	12 0 0
SPELTER.						Black Taggers, 450 of		30 0 0	—
Silesian		19 17 6	—	—	—	14 x 10		30 0 0	—
English, Swansea		22 10 0	24 0 0	24 0 0	24 0 0	At the works, 1 to 1s. 6d. per box less for ordinary; 30s. per ton less for Canada; 1X 6s. per box more than 10 quoted above; and add 6s. for each X. Term-plates 2s. per box below tin-plates of similar brands.			
Sheet zinc		22 10 0	24 0 0	24 0 0	24 0 0				

**REMARKS.**—The course of events does not seem at present to be leading to a very satisfactory conclusion, and there has been a marked feeling of anxiety and uneasiness prevailing throughout the week, which may possibly increase rather than decrease. That there will be something definite transpire in a very short time is the general belief. All commercial men no doubt hope for the best, yet many are fearful of coming trouble, and afraid that serious complications may arise over the Eastern Question. Our Government is evidently impressed with the gravity of the political situation of Europe, and have wisely summoned Parliament thus early that the country may not be unprepared for an emergency. Her Majesty has stated that she cannot conceal from herself that should hostilities be unfortunately prolonged, some unexpected occurrence may render incumbent on her to adopt measures of precaution, and that she trusts to the liberality of her Parliament to supply the means adequate for such preparation; which words cannot be interpreted in any other sense than that of war, and in calling Parliament together at this date it looks as if urgency was necessary in carrying out these precautionary measures; and it behoves business men to take warning in good time and make themselves perfectly safe and secure. We have already seen that a good deal of vexatious delay has been thrown in the way of arranging an armistice, and even now it is exceedingly doubtful whether one will be agreed to; and what may we expect when the terms of peace come to be discussed, especially as it is distinctly stated that England and Austria will not recognize any change in the existing Treaty without their sanction. The settlement of the armistice rests principally between two nations only, but in the issue of the Eastern Question there are a dozen nations concerned. Lord Derby might well express astonishment on hearing that Turkey must first state the bases of peace before an armistice could be entertained by Russia, and if the Grand Duke imagines that by effecting a separate peace with Turkey he has deprived the question of its European character, he will find himself very much mistaken, and the sooner that he and the whole Russian nation are undeceived on this point the better. We have a very great interest in maintaining the independence of Turkey, as affording a great protection to our Indian Empire and its approaches, and we are not prepared to see her dismembered. Commercial affairs have been as unsettled as politics, and dealers have been kept in a perpetual state of suspense by the negotiations proceeding between England and Russia and those now pending with Turkey.

The refusal on the part of Russia to treat through England, and the objectionable reply of the Grand Duke to Turkey, produced a depressing effect on our markets; and such ungracious conduct is little calculated to improve matters, but tends rather to question the sincerity of Russia in her professions for peace, and it looks very much as if she wanted to encroach further upon her neighbour's territory before signing an armistice. Such an act would be as ungenerous as it would be unjustifiable towards a fallen or vanquished foe, and very unbecoming the Christian spirit by which she pretends to be actuated; but people have little confidence in the declarations of a nation which merely makes a cloak of religion. A small section of our religious community, we fear, have caused an immense amount of mischief by their declamations, and have thereby, unintentionally perhaps, encouraged Russia to oppress and ruin Turkey for her past iniquities, or from some other motive. The prejudices of our religionists are as strong and immovable in their belief of the prophecy that the Ottoman power is doomed to retire beyond the Euphrates within the next quarter of a century, that they look upon the present war as leading to that end; but they appear to overlook that part of the prophecy which states that it is to be accomplished without hand, consequently Russia cannot be that privileged power, and we rest our faith more on the enlightenment and change in the religious principles of the people for effecting that mighty revolution. But what does a despotic and semi-barbarous power like Russia care about such things? She has no part in it, and only considers her own ambitious ends; it would be better for her to put up her sword, and give liberty and reform to her own oppressed and afflicted people. Russia should distinctly understand that England is in earnest. Englishmen are not accustomed to say one thing and mean another, and if Russia attempts to injure or prejudice our interests she will have to wage war with the most powerful nation of the earth; however, an opportunity will soon be afforded the world of knowing whether Russia has been solely fighting in behalf of the Bulgarians, or for an extension of empire. The Czar has openly declared that it is not for territorial aggrandisement; let us hope that he spoke the truth, and that future events will confirm it, for then there will be little to apprehend from any continuance of the war. The Turkish Government in the past has no doubt been atrociously bad, but as they now have a parliament there is some hope of amendment, and the loss of the tributary States north of the Balkans ought to be ample punishment for their past misdeeds; but whatever is done we sincerely trust will be decided upon quickly, for people are growing impatient, and want to learn whether it is to be peace or war. As matters now stand dealers are at their wits end to know how to act, whether they buy or whether they sell, the one is just as likely to turn out right as the other is wrong, and there perhaps never was a more open field for competition; but the risk is great, and none but those who can bear a heavy loss are justified in operating, or keeping open contracts, at such a critical moment. If a satisfactory peace is concluded there will be a fair chance of legitimate trade improving, provided it is not previously spoilt by speculation, especially as prices are favourable to an increased consumption; and there is no fear but what our markets will be kept perfectly right if speculation accompanies the bona fide demand; but if, on the other hand, it precedes it at an extravagant rate there will follow a sharp reaction. But it is also necessary to look at the reverse side, and, supposing peace is not established, there will in all probability be war between England and Russia, and the effect of any hostile movement on the part of England would completely undo, and more than undo, all that has been gained; and it is as well to be fully prepared for the worst, and not to lay ourselves open to surprises.

In the event of war it is quite possible for both copper and tin to drop to 60s., and perhaps lower, and those holders who are strong enough to bear such a loss need not be unduly alarmed, but if there are any who cannot meet it they should close their account. General trade is not expected to revive immediately after the cessation of the war, as the depression is not altogether due to the war; it is certainly the principal cause, but there are other matters besides affecting it, and it would be far better to go along quietly and cautiously for a time than to make any hasty movement, and thereby get involved in difficulties and losses. The depression which has taken place in various articles is not confined to

metals, but the same applies to produce generally, and Mincing-lane is said to be no better than Lombard-court. Whether we take the prices of tea, sugar, silk, or leather it matters not, all afford just the same scope for speculation; prices all round are comparatively low, but then the trade and condition of the country, and also of other countries, are so feeble that prices must remain low, and before any sensible rise can take place in the value of metals we must see that supply and demand are properly adjusted, and that foreign competition does not injuriously affect us, and until this is done there will be no stability or expansion of commerce. Buyers appear to have no confidence yet awhile, and, therefore, they are not likely to be carried away by merely a few speculative transactions, which often collapse as suddenly as they are started, and frequently weaken prices instead of strengthening them. Speculation should be entirely suspended, and cash business only accepted. Deliveries ought not to be extended, and all open contracts should be immediately covered—in fact, no undertakings involving risk ought to be kept open or entered upon. A little with safety is to be preferred to taking a heavy responsibility for the sake of increased gain. Caution must regulate every transaction, and traders must be as much on the alert as our statesmen, and not be behindhand in taking every necessary precaution to watch, and guard, and protect their interests from any unexpected occurrence.

**COPPER.**—Our market has been fluctuating, and there has been no dependence upon quotations. The Liverpool reports have given much support to prices, but although a good business has almost daily been recorded from there, and prices occasionally enhanced, especially for the best brands, yet the impression made upon buyers here is trifling, and during the last day or two there has been manifest weakness, but this has more particularly been attributed to the receipt of unfavourable telegraphic advices from Valparaiso. Chili bars for the most part have been quoted between 65s. 10s. and 66s. for g.o.b.'s, the former more often than not being a net price—that is to say, without brokerage; and good brands, such as Lota and Urmeneta, have commanded full prices; the quantity offering of all kinds has been limited, and this has rendered business difficult at quoted rates. There is no real scarcity of this kind of copper, for there are still 17,000 tons in Swansea and Liverpool, but the principal sellers have held off the market, and a little speculative business springing up temporarily helped to lift prices, but there is no solidity in the movement, and we look for lower prices. English tough lately has changed hands as low as 67s. to 68s. 10s., and it is very clear smelters cannot afford to part with English at these prices and pay 68s. or 69s. 10s. for Chili bars. The consumption is no doubt satisfactory, but immediately the price is advanced the demand falls off, and orders for manufactured and yellow metal for India are affected by the low rate of exchange. Some orders have been executed for the East, but at a price below current quotations, and 74s. for sheet copper, and 84s. for yellow metal, appear to be the highest limits that can be obtained. A sale of 700 tons of bars at Havre by the French smelters is reported, so that they are satisfied for the moment. The stock now there is 7180 tons, against 8790 tons in 1877. The stock in London, being chiefly Australian, is 5180 tons, against 2717 tons in 1877, but notwithstanding the large increase Australian is exceptionally firm, Burra being 74s., and Wallaroo 75s. 10s. to 76s. By the mail from New York, January 8, the manufacture of copper and yellow metal is said to remain quiet. Sheathing copper is quoted 25 cents for brazing, 28 cents; yellow metal sheathing, 26 cents; English yellow metal, 14 1/2 to 15 cents in bulk. The demand for ingot also remains very limited, but stocks are not urged, and prices are nominally steady at 17 1/2 to 17 3/4 cents for Lake. The charters for the first fortnight of January have been telegraphed as 2000 tons; the price and exchange are the same as last, but the freight for nitrate is quoted 2s. 6d. per ton less.

**IRON.**—The demand for iron has not in any way improved, and the market continues to assume a very gloomy and unpromising appearance. Some sellers have offered to make further concessions in order to induce buyers to give out orders, but without avail, and it seems as if prices would still droop. The Indian and China markets are reported to be completely overstocked, and there appears little chance of increased shipment to these parts for a considerable time to come. Staffordshire nailrods are procurable as low as 6s. 10s., Belgium 5s. 7s. 6d. English bars are quoted without change, but there is a great want of orders for all common qualities of iron. This is the weakest part of our market, having to be met by the reduced prices quoted for that sort of iron. The prices are below those of English, and as long as the Belgians can show an advantage to buyers our works will suffer. The whole of the trade which has been directed to Belgium might be recovered if our men, instead of idling their time away, would accept less wages, which will have to be submitted to in the end, and they would save themselves a deal of misery and distress if they yielded at once. A workman has his chance of doing better as well as the master when trade is flourishing, but while it is so depressed and competed for there must be great concessions and privations, and one and all have to bear a fair share of the loss. The Parkgate Iron Company, near Rotherham, have been compelled to relinquish their intention of resuming business on account of the men refusing to accept any reduction of wages. This establishment when in full employment gives work to some few hundred men.

At Middlesbrough there are no signs of improvement. Manufacturers maintain the firmness of their quotations, and refuse to transact business at any reduction, but on account of the very few orders which are given out, it causes a spirit of uneasiness to take possession of the makers as to their future prospects. There is no particular change to report from Leeds; business does not amend, but, on the contrary, is very limited. The mills are only barely employed in the execution of a few straggling orders. Business at Birmingham is also very slack, buyers holding back for a time to see what effect it will have on the markets. The French markets are reported exceedingly quiet, and prices show very little variation. The conditions of a treaty of commerce between France and Italy have now been definitely decided on, but its conditions are not yet made known to the public. The imports of pig iron in France for the first eleven months of 1877, compared with 175,000 tons in the corresponding period of 1876, showing an increase of 10,000 tons, while the exports for the same time amounted to 157,000 tons, against 190,000 tons in 1876, showing a decrease of 33,000 tons. Pig-iron has fallen about 2s. 6d. per ton since last Quarter-day. The Glasgow market continued very dull all last week, 50s. 9d. being the closing price on Friday. At the beginning of this week there was a little more animation than there has been of late, several transactions having taken place from 50s. 9d. to 50s. 11d., the present quotation for pigs being 50s. 9d.

SHIPMENTS.		Tons	6,510
For the week ending Jan. 13, 1877			6,510
For the week ending Jan. 12, 1878			6,985
Decrease			416
Total decrease for 1877			1,738
Imports of Middlesbrough pig-iron into Grangemouth—			
For the week ending Jan. 13, 1877		Tons	7,685
For the week ending Jan. 12, 1878			3,970
Decrease			3,715
Total decrease for 1877			5,998

**TIN.**—The market has not undergone more than a trifling change, the value of Australian and Straits ruling between 64s. to 64 1/2 s. for cash. There has been no disposition to press sales, neither has there been any eagerness to buy; the quantity coming forward is ample for all requirements, and with the large stock still existing it will be difficult to advance the market. Some holders seem to be infatuated with the article, and nothing seems to change their one idea, which they cannot shake off, that ultimately the market will recover itself, and although they may pay for the advance over and over again in interest and charges, yet they hold for the time when they hope to get back as many sovereigns as they gave for their tin; if they would let go their tin and cling as tenaciously to their sovereigns we think they would find themselves money in pocket. The New York market is a stand, and with accurate stock prices do not have a very strong support; it is difficult to obtain over 15s. for Straits spots, and no demand whatever exists for float. Banca is quoted at 17 1/2 s. to 17 3/4 s.; Malacca, 15 1/2 s. to 15 3/4 s.; English, 15 1/2 s. to 15 3/4 s.; Refined, 15 1/2 s. gold. About 1000 tons is due in New York from Singapore this and next month. The Dutch Trading Company have announced their next sale of Banca and Billiton for the 30th inst., which will consist of 13,100 slabs Banca and 3500 slabs of Billiton. The tendency of the market in Rotterdam is said to be extremely inactive, as buyers seem desirous to await the result of the coming sale.

**LEAD.**—There has been no movement in this market, and prices are unaltered; but this metal occupies a different position to others, for whereas a war would depreciate the value of all others, it would probably enhance this metal, and our Government may now at any moment deem it necessary to effect large contracts; for even, as Lord Salisbury stated last night, "The waves of war are approaching closely to the interest we have defined." Our neutrality is a conditional neutrality, not a strict neutrality, under any circumstances; that would only be considered folly. We hope our Government will take immediate measures for replenishing the military stores, and not wait for what may happen in the future; for if we are so close upon the verge of war, as intimated by Lord Salisbury, there is not a day to be lost in making active preparations, and our arsenals and forts ought to be abundantly supplied with lead.

**TIN-PLATES.**—Our market is steady, but there is not much doing, limits being below makers' prices. The New York market is inactive, and the demand continues on a very light scale, but no change has been made in prices.

**SPELTER.**—Quotation for Silesian 2s. 6d. lower. Supplies come forward freely, and there appears no present prospect of a change.

**STEEL.**—There is no particular feature affecting this metal, and prices of both English and foreign are easy.

**MESSRS. FIXLEY AND ABELL—GOLD.**—The arrivals have been very small during the week, there being only 26,000l. from the West Indies, 46,000l. from the Brazil, and 90,000l. from India; the demand for America and the Continent, whilst sufficient

to absorb these amounts, has not been active enough to cause exporters to go to the Bank for bars, the only withdrawals from that establishment having been 202,000l., in sovereigns, for Egypt and Li-bon. —**SILVER.** A fair amount of business has been done during the week at prices varying from 5 3/4 d. to 5 1/2 d. per oz., the market is now weaker, the Exchanges from India coming slightly lower. The arrivals comprise about 100,000l. from Germany, 24,000l. from West Indies, and 77,000l. from New York, making a total of 301,000l. The P. and O. steamer takes 215,000l. to-day to Bombay.

**MESSRS. HARRINGTON, HORAN AND CO. (Liverpool).**—Arrivals here during the fortnight of West Coast, S. A., produce—Iberia, from Valparaiso, 565 tons bars, 150 tons ingots. At Swansea—nz. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, we estimate at—

	Ores.	Regulus.	Bars.	Ingots.	Barilla.
Liverpool	1223	917	12,035	10	—
Swansea	2754	4073	2,059	—	—
Total	3977	4990	14,094	10	—

Representing about 17,144 tons fine copper, against 17,460 tons Dec 31, 1877, 14,624 tons Jan. 15, 1877; 12,344 tons Jan. 15, 1878; 11,800 tons Jan. 15, 1875. Stock of Chili copper in Havre, 7180 tons fine, against 8790 tons Jan. 15, 1877; stock of Chili copper abroad and chartered for to date, 11,000 tons fine, against 14,000 tons Jan. 15, 1877; stock of foreign copper in London, chiefly Australian, 5180 tons fine, against 2717 tons Jan. 15, 1877.

**MESSRS. FRY, JAMES, AND CO.—COPPER.** The amount of business doing in the last fortnight has been very small, but the position is regarded as sufficiently favourable by holders as to maintain prices with but very slight variations. Lead is without any new feature. —**TIN** continues to suffer in prices from the superabundant supply, and has ruled again lower, but it would seem probable that its lowest point cannot be very far off. —**SPELTER** is simply neglected. —**LEAD.** A slightly better demand has been experienced, but only at minimum prices. —**TIN-PLATES** continue in full supply, and easy in prices.

**THE IRON TRADE.**—(Griffiths's Weekly Register).—Friday evening. The market for Scotch pig-iron has been quiet during the week. The closing price this afternoon in Glasgow is 50s. 10d., about 1d. per ton above the closing price last Friday. We quote makers' No. 1 iron—Gartsherrie, 59s. 6d.; Coltness, 64s.; Calder, 59s. 6d.; Langloan, 61s. 6d.; Summerlee, 59s.; Monkland, 53s. 6d.; f.o.b. Glasgow; Glen-garnock, 58s.; Eglinton, 53s. 3d.; f.o.b. Ardrossan; Shotts, 60s. 6d.; Kempt, 54s. f.o.b. Bo'ness. Mr. John Lysaght, the well-known galvaniser of Bristol, has purchased the Swan Garden Ironworks, and intends to put them into operation immediately. The attention of trading circles in all departments here this week has been directed to the opening of Parliament, the Eastern Question being uppermost in all centres. The Quarter-Day being over, but for the unsettled state of the Eastern Question we might have had large orders on the market, but business seems to have drifted into a pause, owing, very likely, to the uncertain state of politics in the East; anyhow, business flags very much, and we are unable to report improvement in the iron trade, and the tin-plate trade evinces not the least recovery from the late depression since Quarter Day. The department of the trade which now exhibits the greatest activity is sheet-iron for galvanising purposes and nail rods. The Cleveland ironmasters are concerting measures to reduce the supply of Cleveland iron considerably. It is very likely that a resolution will soon be come to to blow out a given number of furnaces.

The makers of bars, angles, and ship-plate on the Tees complain much of low prices and scarcity of orders, and we believe justly. The manufacturers of Staffordshire and Shropshire, as a rule, are in the same position, and the noted Yorkshire houses are generally working on old contracts. New orders come in slowly for these works this year. The market for Scotch pigs, both in London and Glasgow, is the same in price as last week, but there seems very little disposition to operate at either centre. The market for pig-iron of Staffordshire and Shropshire make was firm at Birmingham yesterday. Cinder iron was weaker. Warrants last week were 50s. 9d., and Glasgow closes to-day at 50s. 10d.

The settlement of the fortnightly account in the MINING SHARE MARKET has occupied the chief attention of the dealers this week, and very little fresh business has been transacted either for investment or speculation. Our quotations, therefore, are still for the most part merely nominal. Metals continue dull, and this fact, added to the uncertainty regarding the Eastern Question, deters the public from investing in anything at present, though a better feeling seems to prevail since the opening of Parliament.

**TIN MINES.**—On Monday the smelters lowered the official standard of tin ore 12 per ton. Practically, as we stated in our last, they had done this for some time past, inasmuch as they were buying the miners' tin at a price much below the official standard, and may be doing so now even below the present drop. Dolcoath are nominally 32 to 34; Carn Brea, 40 to 42 1/2; East Pool, 9 to 10; Tincroft, 12 to 14; Penstruthal, 5s.



and dividends by concerns temporarily overshadowed might then be looked forward to, and general prosperity would follow. With regard to home mines, it is well known that costs have during the long period of depression been reduced to the minimum, and every effort has also been made to introduce labour-saving machinery in the shape of rock-drills, automatic dressing apparatus, and so on, and to secure increased economy in the generation of steam; so that the anticipated improvement would be at once and generally felt, the natural consequence being a rapid rise in the value of mining securities, and a highly gratifying development of enterprise in mines.

The profitable nature of mining enterprise when legitimately conducted is constantly pointed out in the columns of the *Mining Journal*, and it has been shown that equally favourable results can be achieved at home, in the colonies, in the United States, and in foreign countries, provided only that judgment be exercised in the selection of the mines, and that the mines themselves be worked for the purpose of obtaining profits, and not for the exclusive benefit of promoters, the executive, and shareholders. In December the Idaho Mine at Grass Valley, California, paid its 100th consecutive monthly dividend, the return in the nine years amounting to no less than 734% per cent. upon the capital invested; that is to say, the amount subscribed has been returned 7½ times in the nine years, the profit consequently averaging 80 per cent. per annum for the entire period. The local press remarks that the Idaho Mine "is one that has been and is legitimately worked for what is in it, and is not carried on as a stock speculation. It is not known on the Stock Exchange, which is probably one reason why it has been so uniformly prosperous." During 1877 the total value of the ore obtained was \$359,144, and the total expenditure of the mine was \$284,147, the profit being almost exactly \$75,000. Of this the monthly dividend, amounting to 7½ per cent. on the capital stock of the concern, absorbed \$240,250, the difference being carried to the general balance. The total dividends amounted to \$2,270,750, and with regard to future prospects, the superintendent, Mr. E. Coleman reports that the past year has been one of average prosperity, and, although they have not met with any very high grade ore, they have still had a constant supply that has given a fair return, and enabled the company to pay a \$5 or \$7½ dividend every month. The ore in sight is good, and the mine in good condition, so the superintendent sees no reason to expect any material falling off in the yield or dividends. The drifts are well ahead of the stopes, and several years' work may be expected from the ore in sight and what may reasonably be expected from below the 1000 ft. level. The main shaft is at present down to the 1000 foot level and the pump-shaft is also down to the 800 feet level. In view of the rapid pitch now being made of the pay-shute from the main shaft, and the large amount of dead work that will have to be done in order to open another level from the shaft, it is deemed advisable for the working of the mine below the 10 ft. level to sink an incline from this level and follow to pay-shoot down; and for this object they are now opening up a station to fix the engine, and have already ordered a compressor to supply the air as a motive-power. With the exception of the compressor now ordered he knows of nothing that is likely to occur requiring any outlay of money more than the usual expenditures required for milling, mining, and keeping the works in proper repair.

The active measures being taken to facilitate the development of the mineral resources of the Pacific States are referred to in a communication from Mr. Henry Sewell, not the least important being the projected railway across Arizona—an extension of the Southern Pacific. The rails and ties are already on the ground, and grading and track laying will have been begun before this reaches the readers of the *Journal*. The line is to be laid at the rate of two miles a day, and the whole will be finished by the end of 1878. It is considered that the expense is fully justified by the large increase of traffic over the Southern Pacific, and the great mineral wealth of the Territory, which only awaits rail communication for development. The long distances to be freighted by wagon, and the consequent heavy expense, is now a great bar to the development of Arizona's resources. Indeed, there are a number of rich mining districts that remain practically undeveloped by reason of the expense and difficulty of transportation over hundreds of miles of arid waste. All the ore now sent from the famous Silver King, and which yields a dividend of \$50,000 per month to the stockholders, has to be first crushed, then concentrated (10 tons into 1 ton), and then brought by mule teams a distance of from 250 to 300 miles, at a cost of nearly \$100 per ton. With such rates as these nothing but the richest of ores can be profitably worked, and the erection of machinery for reduction on the ground is rendered almost impracticable. The railroad will change all this, so that the time cannot be far distant when the mineral wealth of the district will add largely to the general prosperity. With reference to the same subject the Helena Montana Independent remarks that the revival of mining industries in California and Nevada is everywhere apparent. There is a demand for improved or developed properties never before known in those sections. Capitalists are on the look-out for investments in that direction, and it is no trouble to sell a mine for a good figure if its developments are such as to show that it is really a lode and not a blow-out. In Arizona, too, there is a great demand for mines, and the prices paid are generally very fair for the seller. Utah is also again coming to the front, and an occasional good sale is made, while Colorado is literally alive with men who are anxious to put money into mines and reduction works. This is evidence that there is an abundance of capital in the United States to develop her mines if an opportunity is offered the controllers of the capital to make an investigation of the property offered for sale. It shows that mining is now beginning to be looked upon in its proper light—as a legitimate business instead of a speculation.

The directors of the Mellanar Copper Mine Company at their meeting on Thursday declared a dividend of 1000*l*. (2s. per share), payable on Friday next. At the Mining Company of Ireland meeting on Thursday the accounts showed the net profit for the half-year to be 1194*l*. 10s. 10d., raising the available balance to 2993*l*. 15s. 2d. A dividend of 2*l*. 6d. per share was declared free of income tax, which will absorb 2500*l*., leaving a balance of 493*l*. 15s. 2d. to carry forward. Devon Great Consols, 3½ to 4, and in demand. The monthly sale of copper ore this week has realised 2585*l*. The lode in bottom of shaft on new lode is opening out well.

Cape Copper, 3¼ to 3½; the returns for November were 970 tons of 34 per cent. ore from Ookiep, and none from Spectakel. As to the trial mines, Karolusberg continues unpromising, but Nababep appears to be going on well. In the 28 south-west there is a 7-ft. vein, yielding 2 tons of moderate quality ore per fathom. They have lately sampled 17 tons of ore, averaging 25½ per cent. humid assay, being the result of two months' working. At Narrap explorations are progressing.

St. John del Rey, 300 to 310, ex div.; the latest telegram from the mine gives the produce for December at 45,500 oits., of the value of 17,631*l*., the ley of the ore being 6.9 oits per ton. The advices received on Monday give the profit for November at 8769*l*. 6s. It is remarked that the cost (7585*l*. 13s. 9d.) is as low as could be expected considering the continued high price of provisions, and the large amount of construction and repair work now being carried on. The remittance of 33,300*l*. referred to in the advices has been safely received in London. Don Pedro North del Rey, ½ to ¾; the report for November states that the produce for November was 3108 oits., of the value of 1320*l*. 18s., obtained from 2041 tons of ore. The cost, including all general expenses, and 322*l*. 6s. 3d. on permanent pumping machinery, was 2427*l*. 18s. 2d. The last telegram received dated Rio, Tuesday, states that the produce for December was 4150 oits. Santa Barbara, 1 to 1½; the report states that the produce for November was 3578 oits., of the value of 1520*l*. 13s., obtained from 1021 tons, the ley of the ore being 3½ oits. per ton. The estimated working cost was 1094*l*. 10s. Chontales, ½ to ¾; during November 1089 tons of ore were treated, producing 302 ozs. of gold, worth about 800*l*. The November costs were 651*l*., leaving a profit of 149*l*.

A telegram from San Francisco states that on Thursday the aid of the police, assisted by the troops, was necessary to protect the Chinese immigrants, who were then landing at that city, from the attack of an armed and organised mob. The opposition to the Chinese element is naturally greater amongst the rowdies and non-labouring portion of the lower classes; for, although every workman feels the hardship of having to compete with labour which is offered below the current rate the more intelligent artisans recognise the fact that it would be a disgrace to the American name to oppress any labourer merely because his greater sobriety and industry gives him an advantage. The wages question is one which Chinese immigration can only temporarily affect, and the greater the quantity of cheap labour which America can command, especially for her mines, from sober, industrious, and willing workmen, whether Caucasian or Mongolian, the better it will be for the nation at large. The ring-leaders of Thursday's unruly mob were arrested; and, from the manner in which Congress has received the complaints against Chinese industry and frugality it is evident that American legislators look to the welfare of the citizens generally rather than to the complaints of her few more dissipated labourers.

Richmond, 8½ to 9; the usual weekly telegram shows a still further increase in the produce, the amount being \$105,000, from 1230 tons of ore, presumably with three furnaces. During the week the refinery produced \$60,000. The manager (Dec. 26) reports an improvement in the 200 main drift; they have drifted 30 ft. in very good ore, and the end is still looking well. The winze below the 900 is in ground favourable for sinking, and by the end of January it will be down 100 ft. The furnaces are smelting the usual quantity of ore, and both furnaces and machinery are in good working order.

The latest advices from Mineral Hill are to the effect that Capt.

Plummer is vigorously prosecuting the English company's mine, and has a force of 15 men at work. Indications of the near presence of an ore body have been met with in the Queen Tunnel, and cross-cutting was about to be commenced. The mill will not be started until there is sufficient custom and company ore on hand to justify it. Captain Plummer's management is highly commended, and everybody residing at the Hill is pleased with his administration.

Hultafall, 5 to 5½; the report states that the lode in sinking the shaft and driving the levels continues the same as when last reported upon. The manager in the dressing department reports that he expects the machinery to work at the latter part of next month.

Lead Mines have been without special feature; the news from the several properties is unimportant, and comparatively few transactions have been recorded in the shares. Van, 27 to 29; everything at the mine is progressing as usual. Tankerville, 4½ to 5; and a good business reported in them this week, owing to the improved state of the mine. Grogwinion, 3½ to 4½; the meeting is called for Thursday next. The report states that 600 tons of lead have been sold in the past half year, at an average price of 12*l*. 3*l*. 10d., and the balance of the profit is 1964*l*., which will provide a dividend at the rate of 10 per cent., leaving a small sum to be carried forward. The manager's report gives interesting information respecting the mine and its prospects. Wye Valley, 2 to 2½; it is stated that the lode in the 22 east is looking well, and yielding good ore, and prospects of further improvement are very satisfactory. In the bottom level driving west, towards the rich ore ground in the West, Wye Valley Mine, some ore has already been met with and the prospects of further valuable discoveries in this portion of the property have consequently much improved. West Wye Valley 4 to 4½; these shares have advanced more than 1*l*. since Christmas, and the prospects have so much improved that a further rise is not unlikely. The rich discovery at Brookes's shaft still holds good, and is improving in depth, the lode in the shaft being most productive one. In the past week a fresh improvement has occurred in a new winze sinking below the 26, where the lode has been found of considerable value, with good prospects of further increasing in importance. The dressing of lead is proceeding vigorously. Caron, 2½ to 3½; good advices continue to be received from this mine, and the lode in the bottom level is opening out in a very satisfactory manner. South Cwmystwith, 3½ to 4; all going on well, and the new stopes looking very rich. Red Rock, 2 to 2½; the new discovery at the 60 still holds, and is considered of great importance to the future welfare of the company. St. Harmon, 2 to 3; the cross-cutting of the lode at the bottom level is not yet completed, but the prospects are considered favourable.

Pateley Bridge, 3½ to 3¾; the mine continues to open out satisfactorily. The report states that there is some rich ore ground in advance of the present 30 end west on Rake vein, and operations are being pressed forward at this point. Other parts without any material change, and all surface work, such as dressing and smelting, is proceeding as usual. West Pateley, 2 to 2½; the agent reports he has commenced carting ore to the smelt mill, and but for the severe weather having interfered with the dressing he could have made the returns considerably larger, the ore being already at surface. Leadhills, 4½ to 4¾, with a good demand. The manager's monthly report gives an excellent account of the property, and it is thought that some further important discoveries of lead ores are likely soon to be made.

Subjoined are the closing quotations:—

Asheston, ¾ to 1; Carn Brea, 41 to 43; Devon Great Consols, 3 to 3½; Dolcoath, 32 to 34; East Caradon, ¾ to 1; East Lovell, ¾ to ¾; East Van, 2 to 2½; Glenroy, 2 to 2½; Great Laxey, 21 to 22 ex div.; Hington Down, ¾ to ¾; Leadhills, 4½ to 4¾; Marke Valley, ¾ to ¾; West Pateley, 2 to 2½; Pateley Bridge, 3 to 3½; Penrith, 3 to 3½; Roman Gravel, 8 to 8½; Rookhope, ¾ to 1½; Tankerville, 4 to 4½; Tincroft, 11 to 13; Van, 25 to 30; West Asheston, ¾ to ¾; West Tankerville, ¾ to ¾; Wheal Grenville, 2 to 2½; Almada and Tiritio, ½ to ¾; Argentine, 1 to 1½; Birdseye Creek, ¾ to ¾; Blue Tent, 3 to 3½; Cape Copper, 3¼ to 3½; Cedar Creek, ¾ to ¾; Chontales, ½ to ¾; Colorado Terrible, 1½ to 2; Condes of Chili, ¾ to 1½; Don Pedro, ¾ to ¾; Eberhardt and Aurora, 7½ to 7¾; Exchequer, ¾ to ¾; Flagstaff, ¾ to 1; Frontino and Bolivia, 2½ to 2¾; Hultafall, 5 to 5½; I.X.L., 3 to 3½; Javali, ¾ to ¾; Kapanga, ¾ to 1½; Last Chance, ¾ to ¾; New Quebrada, 2½ to 2¾; Pastarena, ¾ to ¾; Pumas Eureka, 2½ to 3; Port Phillip, ¾ to ¾; Richmond Consolidated, 8½ to 9; St. John del Rey, 300 to 310; Sierra Buttes, 1½ to 1¾; South Aurora, ¾ to ¾; Tecoma, ¾ to ¾; United Mexican 2½ to 2¾.

At the Truro Ticketing, on Thursday, 2782 tons of copper ore were sold, realising 10,098*l*. 15s. The particulars of the sale were—Average quantity, 94*l*. 4s.; average produce, 63; average price per ton, 3*l*. 12s. 6d.; quantity of fine copper, 188 tons 9 cwt. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Dec. 20, 1877	2851	2 94 8	0 6½	23 5 0	10s. 6d.	262 8 0
Jan. 3, 1878	1589	89 7 0	8½	4 14 0	11 3½	58 10 0
17, 2782	94 4 0	0 6½	3 12 6	10 8½	53 12 0	

Compared with the last sale, the decline has been in the standard 1*l*. 15s., and in the price per ton of ore about 2s. 4d.

Mr. James Waddell has been appointed by the Master of the Rolls official liquidator of the Great West Van Mining Company.

NORTH LAXEY.—We have reason to believe that a reply from the Isle of Man shareholders to the remarks of Messrs. Spittall and Rowe at the late general meeting will shortly be published. In the meantime we call attention to the secretary's letter, in another column.

WEST PATELEY (Lead).—The recently discovered south lode, upon which six men are now employed, is opening out well, worth 10 cwt. per fathom. The 20 east, on North Rake vein, continues worth 30 cwt. per fathom. The western end upon the same lode is at present in a "nip," and worth 18 cwt. per fathom. The manager has no doubt it will rapidly open out again. The lodes now being worked from this shaft alone are yielding 3 tons per fathom. Other operations are progressing satisfactorily. The winding-engine will be at work next week. Ore is being carted to the smelt mills.

GROGWINION.—The report to be presented at the meeting on Thursday congratulates the shareholders on the mine's continued prosperity. The half-year's profit amounts to 1962*l*. 17s. 5d. The directors recommend a dividend of 2s. on the old and 9d. on the new shares. The price of lead ore has averaged 12*l*. 3s. 10d., against 13*l*. 14s. 3d. in the previous half-year. The directors are informed that a small dividend may be expected from the Barry Port Company.

THE ALMADA AND TIRITO MINES.—We draw the attention of our readers to the interesting report on these mines in this day's *Journal*. Were it not for the severe drought which has prevailed, and still prevails, in Northern Mexico, and which will cause severe distress in the country, and also a scarcity of water, the mines would now be doing well. There is an important discovery of green ore in the tunnel level in the Providencia Mine, and the lodes in the Mina Grande are become more solid and of better quality. The ore in the winze sinking below the 12 ft. level in that mine is described as being more "coppery," which it appears is always a good sign of silver being present in ores raised in the company's mines. Rain may still be hoped for in January, and we trust it they may be abundant, and thus prevent the suffering arising from deficiency of water.

FALL CREEK LAKES WATER COMPANY (Limited).—During the past week a company has been registered under the above title for the purpose of purchasing a series of lakes, reservoirs, and reservoir sites, situated in the mountains some 6000 ft. above the sea level, and by means of a short ditch bringing the water to the head of the Blue Tent Company's aqueduct. Very little work is needed to increase the storage capacity so as to obtain 150,000 miners' inches of water, and we are informed that already a considerable amount of this work has been accomplished, while the remainder, together with the short connecting ditch, will be done during the coming spring, so as to make the water stores available at the close of the summer of this year. The vital necessity of an unfailing supply of water during the year has long been recognised in connection with hydraulic mining, but the difficulty has hitherto been in obtaining it, as very nearly all the sites for lakes have been appropriated, and cannot now be had unless at a considerable cost. It is stated that had these lakes been purchased twelve months ago they would have furnished water sufficient to enable the Blue Tent Company to commence washing at least two months ago, and when it is remembered that the Blue Tent Company have prepared their ground for continuous work, its value to them cannot be under-rated. It is a noticeable feature in this—the first water company ever introduced on this market—that it is offered at the real cost price, the company paying only 8000*l*. in shares

to the persons through whom the purchase was effected, to recoup them for the money out of pocket and the time expended in getting the property. While the possession of these lakes would seem to be a matter more immediately affecting the Blue Tent (and we are told that the shares have in the first instance been offered to the members of that company) they are yet intrinsically worth investing in by other persons, as it is estimated, and from all we can ascertain, on very good grounds, that a return of at least 18 per cent. on the capital will be realised. Water companies in California are amongst the most prosperous corporations, and we see no reason why this company should not take high rank on our Dividend List.

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## Notices to Correspondents.

\* With convenience having arisen in consequence of several of the Number during the past year being out of print, we recommend that the Journal should be kept on receipt; it then forms an accumulating useful work of reference.

SIR,—I should feel obliged if between your numerous correspondents I could get at the amount and value of the production of metallic minerals throughout the world during any recent year. Possibly one correspondent could give the production of one country, and another of somewhere else. The particulars thus accumulated would be of great interest to most of your readers. Of course we have particulars of British mines in the excellent annual volume of Mr. Hunt.—D.

SIR,—Can any of your readers inform me what has become of the Ergold and Peppongren Silver-lead Mines of Cardiganshire, started in 1872?—ENGINEER.

THE SUPPLEMENTARY SHEET.—We have received occasional complaints, and of late a good many, that the Journal is delivered by country booksellers without the Supplement. Subscribers would oblige us by demanding that the paper should be handed to them complete, as every Journal is accompanied by the Supplement when it leaves our office, and the fault of omission must rest with the country bookseller or their London agent.

LEWIS & CLARK.—The letter from Mr. W. F. Richardson, and the report of Capt. John Kendal, shall appear in next week's Journal.

SHARE DEALING.—We never interfere in the sale or purchase of shares; neither do we recommend any particular mine for investment or speculation, or broker through whom business should be transacted. The addresses of most of the latter appear in our advertising columns.

Received.—H. S. Drinker (Philadelphia): A copy has been handed to Mr. John Darlington, as requested.—"H. E. S." (New York, Dec. 31):—"Silver King Ore" (San Francisco).—"Constant Reader" (Glasgow).—"C. H. M."—"Shareholder" (Hingham Down).—"Ever Ready" (Manchester).—"Shareholder" (Yeovil).—"Constant Reader" (Redruth).—"Shareholder" (Wheal Crebor).—"Fair Play" (Great West Van): Next week.

\* The publication of the Title and Index for the year 1877, in this week's Journal, has compelled us to postpone several articles and letters which were intended to have been inserted. Among them are Mr. James Green's letter on Compressed Air: its Applicability for Pumping—Compound Acting Steam Pumps—the Silver Mines of America—the Mining Company of Ireland—Mr. G. Budge on Mining Probabilities, &c.

## THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, JANUARY 19, 1878.

## IRON TRADE PROSPECTS.

The gloomy anticipations indulged in by so many persons who have been looked upon as tolerably good authorities as to the prospects of the iron trade, we are glad to find are not shared in by all who are conversant with and interested in that pre-eminently important industry, which, more than any other, has raised us to the exalted position we have so long enjoyed amongst nations for metallic and other manufactures. During the greater part of last year almost every branch of business appeared to be depressed, whilst work generally was scarce, wages low, and the price of iron in particular lower than ever it had been before. From these facts it has been assumed that our trade has gone away, and is scarcely likely to be brought back to the proportions of previous years. This, however, is not the opinion of Mr. KITSON, jun., a partner in one of the most extensive and best known firms in the West Riding of Yorkshire, celebrated for their engines. He takes a far more hopeful view of the situation, and considers that the depression in the iron trade is in a great measure due to the marked change which has taken place in the material manufactured, and not to the decline in the production. In maintaining this position at the meeting of the Leeds Chamber of Commerce, on Monday, he admitted that over-production had led to depression so far as manufactured iron was concerned, but he was much struck on finding that the make of pig in Cleveland last year had reached the enormous proportion of 2,100,000 tons, notwithstanding that the price of it was lower than ever it had been. Ten years ago the production was only 1,100,000 tons, yet the whole of the output of last year had been got rid of, the exports of pig-iron to Germany, Belgium, and Holland having been very much in excess of former years. The views we have on several occasions expressed in the columns of the Journal with respect to the change which has taken place in the substitution of steel for iron as one of the predisposing causes of the stagnation in several branches of the iron trade are fully endorsed by Mr. KITSON. He said that much of the outcry which was being heard about the depression in the iron trade was to be attributed to the change which had taken place in the nature of the material which was being manufactured. Whilst some districts, such as those of South Wales, were suffering in consequence of the extinction of their iron rail trade, the substitution of the steel rail was giving greatly increased work and prosperity, on the other hand, to the Barrow district.

As we have frequently pointed out, the days of the iron rail trade are all but passed away, and that the mills in South Wales will be again in full operation we have full belief, when they are so altered as to roll the Bessemer rails. As Mr. KITSON truly remarks, all the statements with respect to the suffering in the iron trade must be accepted with a certain amount of reserve. There was a transition going on from which individuals were sure to suffer, but the general commerce of the country was not suffering, as would be inferred from the railway returns. We know that all important changes benefit in the first instance some individuals to the injury of others; but this will not be the case in the long run, and there is very little doubt but that the death of the iron rail will lead, as it is doing, to increased activity in the production of Bessemer, and so finding employment for more hands. There cannot be any decline in the make of pig in the substitution of steel for iron in the production of many articles which were formerly made only of this latter material, so that we must look forward hopefully to things righting themselves without attempting to force them by means that, in all probability, would have a contrary effect. Of the trade of Leeds Mr. KITSON spoke more encouragingly than was expected. He remarked that, so far as the general iron and machine trade of the town was concerned, he was quite satisfied that in some quarters there was a much brighter prospect now than there was at the corresponding period of last year. This did not apply to all, for there were many of the specialties which were really in a most depressed condition; but all these things must be taken together, and if the general trade of the country developed as it had done some individuals must be content to suffer, whilst the town itself was deriving an advantage. As to statements which appear in some papers with respect to trade at home and abroad, and the little reliance that there is to be placed upon them, Mr. KITSON gave a happy illustration. He said that a short time ago there appeared a leading article in the Times, in which it was stated that locomotive engines were supplied exclusively to Australia from America. The fact was, however, that four large engine contracts were in course of execution in this country for Australia, and the two or three locomotives sent from America were simply sent as an experiment. He wrote a letter of correction to the paper, but it did not appear. The state-

ment made by so good an authority as Mr. KITSON shows that affairs are not so bad as many people have been led to believe, and that the future of the iron trade is far more encouraging than existing appearances would indicate to ordinary lookers on.

## MINE-BORING MACHINERY.

At the present time more than ordinary attention is being paid to the important question of boring machinery, with respect to which there has been a great deal of discussion on the part of inventors and engineers, the great object in view being to obtain a maximum of speed at a minimum of cost. Most of the machines known in England, and some of those brought out by continental inventors, have been specially noticed in the columns of the Journal. With respect to the latter, however, some very interesting information has been supplied in a paper read at one of the recent meetings of the Midland Mining Association, by Mr. J. C. JEFFERSON, entitled, "Deep Boring as Practised on the Continent," referring more particularly to rope-boring apparatus. The principal advantage of a rope over rigid rods is in the saving in cost and time, owing to the unscrewing and screwing of the latter. To fulfil all the requirements for boring a rope of either steel or wire should not only possess sufficient flexibility to pass over a conveniently sized drum or pulley, but should also be made stiff to the extent of preventing any extension, contraction, or arbitrary rotation—for it is the latter only that is partially provided against by the use of a flat rope. In 1832 it appears M. SELLON invented an instrument for boring with a rope, and succeeded in sinking in the neighbourhood of Saarbrücken through the Bunter sandstone, overlying the coal measures, some of the bore-holes having a diameter of 18 in. The ordinary operation of boring with a rope, it may be said, depends on the fact that a weighted rope uncoils or untwists itself, whilst a rope from which the weight is suddenly taken off recoils itself, so that if a swivel were inserted between the rope and the borer, then on the latter being raised the rope untwists itself, and imparts a rotary motion to the borer. The rotation is uncontrolled, and very uncertain, and in the case of great depths causes irregular holes to be made, and so putting a stop to the boring altogether. One inventor recommends an iron wire-rope, with hempen strings intertwined. This was M. JOBARD, whose apparatus consisted of a cast-iron cylinder about 8 in. in diameter and 3 ft. 4 in. long. The outside of the surface was fluted so as to allow the debris and slime to rise between it and the sides of the bore-hole, whilst the upper end of the cylinder formed an empty inverted cone in which the fineslime settled, the lower end being cast in the form of a crown borer in a chilled mould, to make the cutting edges sufficiently hard. When it was desired to continue a bore-hole after it had been lined, or make the tool cut the hole of the original width, the tool was not suspended vertically, but by attaching the rope somewhat aside from the centre of the support the tool necessarily hung somewhat askew, so that the lower cutting edge was eccentrically placed with regard to the axis of the bore-hole, and so cut the bore-hole of a diameter larger than itself. At Saarbrücken, however, the ordinary chisel borer did not answer very well, on account of the difficulty of obtaining a regular rotation of the borer. The surface apparatus used by the Chinese for causing the rise and fall of the cutter consisted of a long spring pole, about the same as is used in England and Westphalia for small borings with rigid rods.

The late Professor of Mining at Berlin Mining Academy, Herr LOTTNER, pointed out the disadvantages of boring with a rope, which included the uncertainty of the rise and fall of the borer in the case of great depths, the impossibility of rotary boring in soft clayey grounds, and of perceiving by the holding of the rope the work and effect of the borer, &c. These disadvantages, it was pointed out, would, in all probability, lead to the discontinuance of rope boring to a great extent, and until the invention of Messrs. MATHER and PLATT, the bore-hole in the Military School of Paris, 600 ft., was the deepest known executed by means of a rope. In the case of the well-known firm just alluded to we may say that at Middlesbrough their machine went to a depth of 1200 ft. through the New Red Sandstone, resulting in the discovery of a bed of salt 100 ft. in thickness. The boring occupied a great deal of time, and is said to have cost 10,000£. The principal difficulty was owing to the cutter, which was of such enormous weight that at times when the sides of the hole slipped in the cutter got into a slanting position, and stuck fast. We are also told that in 1860 GEORGE KOLB succeeded in sinking a bore-hole 12 in. in diameter, by means of a rope through the Rothliegendes, strata corresponding with our Permian, at Byreuth, and with excellent results. By his arrangement a long rope had a heavy weight attached, and the weight caused the rope to untwist through an arched depending on the length of the rope and the weight of the borer, and as soon as the rope was lowered so as to take the strain off it it coiled itself back again. With a length of 60 ft. KOLB found that the rope untwisted itself through a quarter of a circle. A perfectly loose swivel being inserted between the rope and the weight the rope would lay hold of the weight on being raised again in a position of 90° different from the previous position, so that four blows would suffice to cause a complete revolution of the borer. To make a bore-hole perfectly circular at least from 20 to 30 blows ought to be struck at each rotation. In the Rothliegendes KOLB averaged 12 ft. advance in 24 hours, and in a favourable instance obtained a maximum advance of 20 ft. in the same time, one of the bore-holes made being 1600 ft. deep. Another invention is that of SONTAG's free-falling rope-borer. This is so arranged that in consequence of the torsion of the rope the cutter bores the holes clear, somewhat larger in diameter than the breadth of the cutter, so that the repeated wedging fast of the cutter in the bottom of the bore-hole, which often occurs in other arrangements, never occurs with that of SONTAG.

Herr HOCHSTRATE, of the Rheinpreussische Colliery, has also devised a free-falling rope, which consists principally of a hollow cylinder and a free-falling piece, with two wings that slide within the cylinder. In the cylinder there are two long slots placed diametrically opposite, and in these the wings of the free-falling piece slide. The lower end of the free-falling piece is welded to a broad screw (which has been formed by twisting a long thick flat piece of iron), and this latter is cotted at its lower end, where it is turned cylindrical to a long heavy rod of iron, which is inserted between the falling pieces and the boring tool, to which it is also cotted to give sufficient striking weight. Another invention in the same direction is that exhibited at the Paris Exhibition of 1868 by M. GASKI. The frame is formed of two long vertical bars, which are connected by three cross-pieces, being essentially a frame and gripping apparatus. The chief disadvantage of this invention appears to be in the difficulty of suspending the frame perfectly vertical by means of two ropes or chains, for if the frame is not vertical the bore-hole will also be not vertical. The rotation of the borer is effected by rotating the crib at the surface, from which the frame is suspended, after every blow of the borer. For this purpose there is a key in the cross-piece, and a corresponding groove in the free-falling bar. Another instrument is that known as KLEBERT'S Free-Falling Apparatus for Rope-Boring. The free-falling piece has the lower boring-rod attached to it by means of a conical joint, through which a jib and cotter are passed to fix it securely. The lower end of the boring-rod is enlarged so as to allow a socket-hole to be made in it, into which the conical pin of the cutter fits, the latter being further secured by a jib and cotter passing through the joint. The cutter is made of cast-steel, and can be readily removed or replaced. When the whole of the apparatus, including the free-falling piece, has been raised and allowed to fall slightly the pressure of the water beneath the two inclined halves of the disc raises them to a horizontal position, thus decreasing the sectional area of escape for the water round the hat, and consequently increasing the upward pressure on the hat, so that the free-falling piece falls freely through the distance, causing the borer to strike the bottom with the velocity acquired during the descent. The rotation of the borer after every blow is effected by means of a loose ring with pins, and the inclined portion of a long slit. When the apparatus is lowered in order to catch hold of and raise the free-falling piece the upper side of the inclined slit presses against the top of the pins, and by means of rings the borer remains pretty firm in the bottom of the bore-hole.

We have thus briefly noticed some of the inventions connected with deep boring as practised on the Continent as given in detail by Mr. JEFFERSON. We hope, however, on a future occasion to be in a position to enter into the subject more fully, seeing that its importance to mining operations in this country in particular cannot be over-rated.

## A WIRE-CABLE STREET RAILROAD.

The latest Californian "notion" is wire-cable street railroads. The last spike in the track of a new line of this description has just been driven at San Francisco. The track is the most substantial one of the kind yet constructed in San Francisco; it extends from Kearney to Fillmore-streets, and with the exception of the placing of the cable in position everything has been completed. The knees, braces, and ties of the road are of heavy wrought-iron, firmly bolted in their places. The rails, which were manufactured at Pittsburgh, Pennsylvania, are of Cumbria steel, and they are made after a rather novel pattern, having an extra flange to protect the pavement near the rails. The track, which is 18 blocks long is divided into two equal sections of 9000 feet each. The cable for the section from Kearney to Fillmore-streets had arrived at San Francisco at the last dates from that city, and it was about to be placed in position immediately. The cable for the west end was also expected daily, and was to be put in as soon as it arrived. The rolling stock of the road, consisting of 25 cars and an equal number of dummies, is in course of construction, and will, it is stated, be both handsome and comfortable. The Kimball Manufacturing Company has been building a portion of the rolling stock, and the rest is to come from railroad shops at Sacramento.

At the crossing of California and Larkin-streets, where the two sections of the new road meet, the company has erected a three-storey building, 75 ft. wide by 80 ft. deep, in which are the engines and machinery, and rooms for storing the cars when they are not in use. The engines and machinery are placed in fire-proof vaults or cellars below the level of the street, so that in case the upper stores, used for storage, should be consumed by fire no delay would be occasioned in the running of the road. The walls of these vaults are of brick, and the ceilings and arches are of iron and brickwork. The operating power of the road will be supplied by three steam boilers and two vertical engines of 250-horse power each. It is expected that two of the boilers will furnish all the steam required, and they are so connected by steam drums that any one of them can be disconnected for clearing out or repairing. The two engines have cylinders 22 in. in diameter, with a stroke of 35 in. Either engine is powerful enough to work the entire road with ease, and only one engine will be used at a time, the other being held in reserve to prevent vexatious delays in case of accident. The lower floor not affording sufficient space for the accommodation of all the rolling stock, elevators have been placed in the building, and by this means carriages can be hoisted to the upper stories. The driving gear will be placed in a room 100 ft. long by 26 ft. wide, and having in some places a height of 35 ft. This room, which is well lighted, is built under the street, and contains the drums, drum drivers, and apparatus for taking up the slack of the cable. The stretching of the cable has been a source of constant annoyance on other street railroads in San Francisco, and this company has taken special pains to secure an automatic take-up, which will prevent the kinking of the cable, and the consequent breakages and delays. The take-up gear consists of four heavily-weighted cars placed on in line planes set at an angle of 30°. The cable is passed through pulleys attached to these cars, and their weight is sufficient to take up 130 ft. of slack if necessary. Being so heavily weighted, the stretching of the rope is taken up at once, and it is impossible for the rope to kink.

As a means of facilitating street traffic, minimising fatigue, and economising time, these San Francisco wire cable street railroads are, probably, worthy of notice and commendation. We take it that a wire cable street railroad is simply a tramway made upon American principles, and worked by steam-power. Such a system of locomotion could not, in all probability, be introduced into the crowded main streets of London, but it might work well in some of our provincial towns.

## ILLUMINATION BY ELECTRIC CANDLES.

Reference has several times been made in the *Mining Journal* to the inventions of Mr. PAUL JABLOCHKOFF, of Paris, for improvements in electric illuminations, and his new system of distributing and increasing with atmospheric electricity currents proceeding from a single source of electricity for the purpose of supplying several lighting centres certainly appears to be a step towards popularising this system of lighting. In order to obtain useful results from a current proceeding from a source of dynamic electricity instead of operating directly with the said currents as heretofore, he, according to his present invention, causes them to undergo a double transformation by firstly converting the dynamic electricity into static electricity, and then reconverting this into dynamic electricity; it is by means of the latter current that Mr. Jablochkoff obtains useful results. Instead of closing the circuit of a source of electricity by means of a continuous conductor as heretofore, he unites the conductor coming from one of the poles with one of the armatures of a condenser composed of one or more Leyden jars of large surface, or constructed as will presently be explained. The other conductor is connected in various ways.

According to one arrangement we will suppose one conductor stretched tightly like a telegraph wire, a magneto-electric machine giving alternate currents forming part of such conductor. Upon the portion of the stretched conductor connected with one of the poles or the magneto-electric machine two or more Leyden jars forming condensers are so suspended that the conductor communicates with the interior surfaces, or a condenser of peculiar construction may be used instead. The outer armatures of each of these condensers is connected to one of the charcoal points of an electric candle, or with one of the ends of the slab of kaolin operating as has been explained in connection with Mr. Jablochkoff's previous lights. The other charcoal point or the other end of the kaolin slab, as the case may be, is connected to the other pole of the magneto-electric machine. Thus of each pair of carbon points one is connected with a common conductor from one pole of the machine, and the other with a common conductor to the other pole of the machine. This arrangement is capable of slight modification, such as connecting one of the carbon points with the earth instead of completing the circuit with a wire, and Mr. Jablochkoff further states that the electricity may be discharged into the air from points. His drawing shows two conductors proceeding from the magneto-electric machine connected with the interior armature of the condensers. The outer armatures are in one case connected with the earth, and in the other with pointed prongs, which facilitate the escape of the electricity into the air; in both these cases the illuminating apparatus is placed between the inner and outer armatures.

The interposition of the condensers, in Mr. Jablochkoff's opinion not only allows the current to be distributed in several directions as he has described, but has also the effect of developing atmospheric electricity, and of accumulating it in the condensers, from which it is directed in the form of currents to the illuminating apparatus. The total quantity of electricity supplied to these apparatuses is, therefore, greater than that supplied by the primitive current, and consequently produces a stronger light than that which the latter would give if led directly to the illuminating apparatus. It will be evident that this electricity can, according as may be required, be supplied either in quantity or in tension. He prefers the special condensers to the Leyden jars, and these are of very simple construction. They consist essentially of a kind of voltaic pile formed of metal plates and insulating slabs; but the metal plates 1, 3, 5, 7, and 9 on, project on one side, and are connected with a common conductor to one pole of the magneto-electric machine, whilst plates 2, 4, 6, 8 project on the other side, and are similarly connected with the other pole of the machine. When greater tension is required the height of the pile is increased, and only plates 1, 3, 5, 7, 9, and 11 on, project and are connected with one pole, whilst 2, 4, 6, 8, 10, and 12 on, project and are connected with the other pole.



16, and so on, project and are connected with the other pole. The form of condenser may, of course, be varied without departing from the invention. Mr. Jabluchoff's claim being for the peculiar method of distributing electric currents proceeding from a single source of electricity for supplying illuminating apparatus by first converting a current of dynamic electricity into static electricity, and then reconverting it into dynamic electricity which is conveyed to the illuminating apparatus; and secondly, for the method of strengthening electric currents, such as those referred to, by means of currents, of atmospheric electricity obtained in the way described.

**THE PROSPECTS OF THE IRON TRADE.**—Reference is made in another column to the encouraging views with regard to the prospects of the metal and machinery trades expressed by Mr. Kitson, jun., at the Leeds Chamber of Commerce, and it is satisfactory to find that his views are fully confirmed by Messrs. Wm. W. Bird and Co., the London metal brokers, who are acknowledged to be at all times well informed on the subject—that when South Wales is prepared to make steel rails trade will revive there. They remark that the year 1877 has, doubtless, been a bad one for all interested in the British iron trade, but the gloomy accounts given do not sufficiently recognise the change that has widened the area of buyers' choice of the sources of supply all over the world, and by compelling large purchasers to take the position of foreign iron industry into account has materially altered the conditions of our trade, and especially of the export trade. The aggregate orders given out by public tender here and on the Continent exceeded in 1877 anything previously known, the home trade was tolerably good, and exports do not compare unfavourably in quantity with former ordinary years, but depression and distress has resulted from the irreconcilable differences between masters and men, the fact extending substitution of steel for iron and foreign competition. Owing to the slackened local demand foreign industries have had to accept the outside contracts at admittedly unremunerative prices as a lesser evil than that of closing their establishments. The cheap foreign iron has been an advantage to consumers, if not to producers and workmen, and the discussions in foreign Chambers of Commerce demonstrate the difficulty still experienced in counteracting the natural advantages of this country. The future of the trade under a peace aspect is far from discouraging. We have been ousted from some of our old markets less by our inability to quote a low price than from disinclination to give them credit. It has often been urged with some show of reason that when iron gave place to steel our manufacturing importance would diminish, and that our want of suitable ores, the disadvantage of a lower technical education here, neglect to study chemistry, &c., would give the pick of the trade to our rivals. But, as a matter of fact, the steel trade of Great Britain has marvelously developed and gone beyond its rivals, the production of steel ingots equalling now, according to statistics just made public, no less than 750,000 tons per annum, whilst that of the United States, which ranks next, is 525,996 tons per annum; France, 261,874 tons; Germany, 242,261 tons; Belgium, 71,758 tons; Sweden, 22,789 tons; and Russia, 8500 tons per annum. If Messrs. Bird and Co. do not look for a speedy and immediate recovery of our trade, they would at least ask Englishmen to dismiss from their minds the apprehension that our trade will never get over the present depression.

**BOARD FOR EXAMINATION OF COLLIERY MANAGERS.**—SOUTH WALES MINING DISTRICT.—The annual examination for the granting of certificates of competency, under the Mines Act, 1872, was held at the Town Hall, Cardiff, on Jan. 8, 9, and 10, before the examiners appointed by the board—Messrs. W. Adams, C.E., Cardiff; T. Forster Brown, C.E., Cardiff; E. Daniel, C.E., Swansea; and the secretary to the board, Mr. Charles Henry James, mining engineer, Merthyr Tydfil. Thirty-four candidates presented themselves for examination, and the following will be reported to the Home Office as qualified to receive certificates of competency:—Frank Bell, Cardiff; Evan S. Bevan, Hirwaun; W. Davies, Ferndale; David L. Evans, Argoed, Mon.; S. W. Evans, Llwynypia; David Ellis, Pencoe; David M. Evans, Llwynypia; Henry Henry, Llwydcoed; Edward Jones, Treorkey; W. Jones, Blaenavon; W. Jones, Llest Colliery, Tondri; F. D. Mitalfe, Pontefract; J. H. Morewood, Clydach; W. D. Owen, Treherbert; David Rees, Pontypool; W. H. Roulledge, Aberdare; W. Saint, Cwmmer; R. Snape, Aberdare; M. Tumblyn, Maesteg; S. R. Williams, Pentre.

**COAL AND IRON IN THE UNITED STATES.**—Business has become quiet on the New York pig-iron market. Scotch pig has been somewhat neglected at New York; the stock of Scotch pig in and around New York is estimated at 2000 tons, which is about the extent of the stock on hand at the close of 1876. There has been some enquiry for steel rails at New York, although no actual transactions have been reported; quotations for steel rails have ranged at New York at \$40 to \$43 per ton currency at the mills. The production of steel rails in the United States in 1877 is estimated at 450,000 tons, as compared with 412,000 tons in 1876. The demand for iron from the Southern States is expected to present an improvement in the year upon which we have just entered. The demand for steel has continued fairly active for the season at Pittsburgh, the mills having about as much as they can do. Prices have experienced scarcely any change. The wrought-iron pipe trade has been tolerably active at Pittsburgh, principally, however, on accumulated orders, the demand recently having been comparatively light. The New York coal market has presented no great amount of activity; transactions have, indeed, only been carried on from hand to mouth. The aggregate extraction of anthracite and bituminous coal in Pennsylvania to Dec. 22 last year amounted to 23,706,573 tons, as compared with 22,090,862 tons in 1876.

#### FOREIGN MINING AND METALLURGY.

It appears that during the first eleven months of last year 708,000 tons of minerals and limailles were imported into Belgium, as compared with 622,000 tons in the corresponding period of 1876, and 764,000 tons in the corresponding period of 1875. The imports of rough pig and old iron in the first eleven months of last year were 162,500 tons, against 186,000 tons in the corresponding period of 1876, and 131,000 tons in the corresponding period of 1875. The imports of other articles experienced no material variation last year. The exports of minerals and limailles from Belgium in the first eleven months of last year were 194,000 tons, against 150,000 tons in the corresponding period of 1876, and 153,000 tons in the corresponding period of 1875. The exports of rough pig and old iron from Belgium presented no material change in the first eleven months of the last three years, but the exports of rails and other descriptions of manufactured iron from Belgium in the first eleven months of last year were only 75,000 tons, against 81,000 tons in the corresponding period of 1876, and 89,000 tons in the corresponding period of 1875. A denial is given to a statement that the celebrated firm of Krupp, of Essen, had contracted to supply the Upper Italy Railway with 5000 tons of steel rails at 64. 8s. per ton, delivered at an Italian port; Herr Krupp offered to make the delivery at 64. 9s. 3d. per ton, but the offer was declined.

An attempt has been made by certain works in the Meurthe-et-Moselle to advance the rates current for refining pig. Business might, however, be still easily effected at 24. 9s. 6d. per ton at Longwy, and 24. 10s. 6d. per ton at Nancy. The attempt at an advance appears to have been based on an enhancement in quotations on the part of the Luxembourg blast-furnaces. At present Luxembourg pig costs about 24. 16s. per ton on the frontier. Reductions continue to be made in wages; thus a reduction of 10 per cent. has been made in the rolling-mills of the Moselle, and also in those of Maubeuge. The Fives-Lille Works have received an order from the Russian Government for the delivery of 17 locomotives within the shortest possible period. French industrialists are looking forward with some little hopefulness to the obtaining additional orders for rails now that the construction of 10,000 miles more railway has been determined on in principle in France. The Terre-Noire Company is endeavouring to obtain a concession of some extensive mines of manganese at Barlet. The important French mechanical concerns

known as J. F. Cail and Co. failed to realise any profit last year; the concern was, indeed, worked at a loss of 26,280l. during the twelve months.

The Belgian coal trade has presented scarcely any change. The weather having become colder, and the snow having made its appearance, there has been more demand for domestic qualities of coal, but prices have experienced scarcely any improvement. The value of the imports of coal into Belgium in the first 11 months of last year was 83,939l. less than in the corresponding period of 1876; the value of the exports was also 266,840l. less. The proprietors of several mines in the province of Liège are considering the propriety of introducing telephones into their workings.

A French law of March 26, 1877, ordered the appointment of a commission to investigate the best means of checking fire-damp explosions in coal mines. The members of this commission have just been appointed. The commission is presided over by M. Daubrée, Director of the School of Mines. The demand for coal has not increased in France; prices have, however, fallen to such a point that they cannot well go lower. In the Pas-de-Calais the best industrial coal is quoted at 10s. per ton at the mines.

#### REPORT FROM CORNWALL.

Jan. 17.—Let us hope that to-day will get rid of some at least of the uncertainty which has been doing our special interest so much harm of late. Things have come to such a pass now that it may fairly be doubted whether the metal market would not stand better than it does in the face of actual war. Nothing is more natural than that uncertainty should force prices down to the lowest limit, and yet there are few who can have expected that by the time the New Year was a fortnight old the tin standard should be down to 61s. and 62s., and it is said that it may go lower even yet. Whether this be so or not we still adhere to our previously expressed opinion that it is wiser to hold than to sell at the present juncture. It cannot be very long now before we shall know what we shall have to face, and black as appearances may be it is by no means certain that war will be the inevitable result of the present aspect of the Eastern Question so far as we are concerned. And if we do not go to war then an improvement is inevitable, for as between Russia and Turkey matters are practically at an end, and Russia is hardly likely to endeavour to extract such conditions of peace as will bring Germany and Austria about her. However, we shall see.

West Seton is recovering from its depression, so far as the price of shares is concerned, and may have a fair chance yet. There has been a good deal of talk about the course proposed to be taken by the general body of shareholders in consequence not only of the appointment of the committee proposed by Mr. Rule, but of the action which the committee has taken; but it would be difficult to arrive at anything positive. Even if the suggested meeting is held one can hardly fancy that it will materially alter matters. Mr. Rule's interest is large; and though if all the shareholders had been fully represented, and fully cognisant of all that was in hand at the last meeting, no committee might have been appointed, still the committee being in existence there are sure to be many people who will say "give them a trial." The results of that trial we should not like to predict, but West Seton may still have a future if it is judiciously dealt with.

We are not surprised to see here and there a few evidences of a falling off in the production of tin—not, we would point out, in the richness or the productiveness of the mines. They are as rich as ever, and show no sign of exhaustion—that is, generally speaking. Witness the recent discovery in Cook's Kitchen, which may, by-and-by, lead to the restoration of the former prosperity of that old "bal." But it certainly is wise in those who held that the present depression must come to an end sooner or later, and probably at no very distant date, not to send their produce to market at a loss. So the dressing operations at several of the mines are being restricted, and by-and-by there will be, if the tendency continues, a large amount of stamp power unoccupied. The wisdom of selling tin in the stone is, however, questionable. There must be a profit on dressing or no one would buy the stone, and that profit the mines should certainly keep in their own hands where they have the necessary plant. This is not the same question that arises when a mine has insufficient stamping power; where that is so it may be wise to sell in the stone under present circumstances, rather than lay out additional capital.

#### REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Jan. 16.—The dispute between the workmen at the Penrhyn Slate Quarries arises from the introduction into the working rules of the quarries of restriction as to the number of holidays. The extraordinary holidays are not to exceed six in number throughout the year, and in these is to be included all time lost through negligence. Fines are to be imposed, which are to be paid out of the benefit club fund of the quarries. The object is to prevent both in the interests of the men and those of their employer unnecessary loss of time. The restrictions have been sanctioned by the Quarriesmen's Union, but some of the men object to their introduction. The agents met the committee of the quarries on Monday last, and expressed their readiness to carefully consider any reasonable objection the men had to make, and it is hoped that the result will be an amicable settlement. The men at the Rhos Slate Quarry, near Betws-y-Coed, gave notice on the 8th instant of their intention to strike. The interchange of courtesies between their late employer and the men at Rhiwrydydd Slate Quarry, Festiniog, was brought to a close lately by the presentation of an elegant gold watch to Miss Matthew, daughter of Major Matthew, the late principal owner of the quarry. The correspondent of an Aberystwyth paper points out that as the result of three accidents lately in the slate quarries of Cerris twenty people are likely to become chargeable to the Machynlleth Union, and asks if there is no means of getting compensation from the quarry owners as from railway companies. The question widens into the larger one—are employers liable to be made chargeable with compensation to men injured in their employ? The law has again and again said no, unless it can be shown that there was culpable negligence on the part of employers to furnish the necessary safeguards. Even here the men have the remedy in their own hands by refusing to work unless such safeguards are provided—just as sailors frequently refuse to go to sea in an untrustworthy ship. Under ordinary circumstances men accept the risks of their occupation in accepting employment, and it need hardly be added that the presence or absence of such risk affects the rate of their remuneration. The magistrates of Carnarvonshire have appointed the police inspectors under the Explosives Act, and have fixed the rate of remuneration at 5s. per magazine per year.

Two fatal accidents have occurred in the collieries of the Flint district. At the Bettisfield Colliery Robert Evans was killed while in the act of removing a prop from an old road with a pick instead of a dog and chain, and his mate was with difficulty extracted from the fallen debris. The foreman was censured for not requiring the men to use the dog and chain. An inquest, at which Mr. H. H. H. M. Assistant Inspector of Mines, was present, was held on Monday week, on the body of Hugh Hughes, who was killed a few days before at Mostyn Colliery. Williams, the man's mate, had left the end of the driving to fetch a tool, and on his return in a few minutes he found Hughes buried under a fall of coal. The poor man soon expired. The verdict was "Accidental Death." Mr. R. N. Griffith, engineer of the new winnings at Plas Power Colliery, is announced to deliver a lecture in connection with the Wrexham Society of Natural Science on the 20th inst., on the section of strata passed through in the new sinkings. All that can be safely said about the coal and iron trades of the district is that there is no improvement.

The men at the Minera Limestone Quarries have set the good example of raising a subscription in relief of the distress in South Wales, and collections in the chapels of North Wales for the same object are becoming general. Two workmen from the lime rocks of Porthywen and Pant have been taken to the Oswestry Cottage Hospital suffering from accidents. Hughes from Porthywen by a fall of top rock, and Evans from Pant by falling himself a considerable depth from a ledge of rock.

If your courteous correspondent, "J. D.," will refer again to my former report he will see that I by no means discourage deep mining in Cardigan. I only take exception to advice indiscriminately given to go deep. Regard must be had to the nature and position of the strata. The workings at Taliesin and the lead in the Bog shaft, with all of which I am familiar, illustrate this. Possibly, if the lode had been followed southward, and then followed in depth under the present unproductive ground, the result would have been different.

If I may venture an observation on the report from Bodidris Mine, which appeared in last week's Journal, I would say that the workings must be taken below the dark-coloured limestone, and away from the fossils before any body of lead can be hoped to be found.

At the meeting of the Shropshire Chamber of Agriculture, held in Shrewsbury on Saturday last, the chief question matter for consideration was a report presented by a sub-committee on the use of traction-engines on roads. From this report it appears that four miles of road within Shropshire are traversed daily by two engines and two wagons that ply between the mines and quarries of Llangynog and the Cambrian Railway at Porthywen. The cost of repairs per mile of road before the engines were used was 26l. per mile, the present cost is 500l. per mile. The same engines traverse six miles of road in the county of Denbigh; this length used to be repaired at a cost of 30l. per mile, the cost is now 180l. per mile. The same engines also travel six and a half miles in the county of Montgomery; the cost of repairs was formerly 3l. per mile, now it is 70l. In the same county traction-engines ply between the barytes mines of Wotherton and Montgomery Station; here the cost has been increased from 11l. to 150l. per mile. The meeting was careful to express itself as not desiring to oppose the use of traction-engines, but was of opinion that the users of the engines should be made to contribute largely towards the increased cost. But if the additional cost of keeping a road in a fit state for the passage of traction-engines over it averages 200l. per mile, would it not be better for all parties concerned to raise the necessary funds and make tramways? Or is the greatly increased cost of repair only a temporary charge, to be reduced when the roads are made fit for the traffic?

The building stone trade is beginning to suffer from the general depression, and a number of men were discharged from the Cefn Freestone Quarries last week.

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Jan. 17.—There are a few more orders on the books of the iron makers now than a week ago. The time which has elapsed since the holding of the quarterly meetings has afforded merchants and consumers the requisite opportunity to make up their minds what course they would pursue, and the result has been the distribution of some tolerable orders. Buyers of finished iron, as a rule, have taken care to secure for themselves the benefit which certain makers have obtained and which most others will obtain by reason of private wages arrangements with their men. By this means they have placed contracts at (say) 2s. 6d. a ton under the rates prevailing a few weeks ago. The Coal Trade is without improvement. The demand for all descriptions is considerably within what is customary in January, and the produce of new collieries being sent freely into the market keeps prices low.

The Mines Drainage Commissioners have spent another day in discussing the clauses of the proposed new Bill. The clause against which, as well upon the board as off it, most opposition was directed was that which proposed to render districts which had voted themselves out of the mines drainage area liable to be re-included if it could be shown that they sent water into an adjacent district. After a hot debate the Commissioners have determined to withdraw this clause. A variety of alterations has also been made in the rest of the Bill to meet the views of numerous mine-owners. Still, it is hardly likely that the Act will get through Parliament without much opposition.

On Tuesday a meeting of the Iron Trade Wages Conciliation Board was held in Wolverhampton. In reply to the men's representatives, the masters stated that the private wages arrangements which were now being made were the result of offers on the part of the operatives, in order to keep the works open. The question of a general reduction was then entered upon. The masters declared that nothing less than a drop of 1s. a ton on puddlers' and 10 per cent. on millmen's wages would be of any service. The men, while admitting that the trade was most fearfully depressed, did not think so great a drop was called for. Ultimately it was resolved that the whole question should be submitted to the arbitration of Mr. J. J. Chamberlain, M.P. (the arbitrator to the board), who should be asked to appoint a meeting at the earliest opportunity. Meantime, the operatives at all the works will continue at work upon the terms which shall hereafter be fixed by Mr. Chamberlain.

The Darlaston Steel and Iron Company held its first ordinary meeting on Monday. The directors' remuneration was fixed at 500l. per annum. A statement of the present position of the concern was made by the Chairman of the company (Mr. S. Rubery). The directors, he said, saw that their future was in the collieries. He himself was convinced that if the colliery was properly worked there would not be a better paying concern in the district. The Cannock Chase measures had been proved to underlie the whole of the colliery. The directors hoped to develop the mines without making any further call upon the shareholders. The mills and forges and the blast-furnaces, the directors trusted, they would be able to let, which would bring them in an income of something like 24 per cent. on the debentures.

The North Staffordshire iron trade is more active since the holding of the quarterly meetings, inasmuch as some buyers have now distributed their usual contracts. The coal trade is without alteration.

#### REPORT FROM DERBYSHIRE AND YORKSHIRE.

Jan. 17.—Business has in no way improved at the mines and iron-works since my last notice, and the prospects are anything but encouraging. In the lead districts the output of ore has been but moderate for some time past, and there has been a considerable falling off in the number of persons employed in this industry, which at one time was a very important one in Derbyshire. But of late years it has declined in a marked degree, although it cannot be from the exhaustion of ore, despite the fact that, as a lead district, it is about the oldest in the kingdom. The quantity of iron ore being raised is but moderate, makers of pig now depending a great deal on the supplies from Northamptonshire, which are plentiful, the ore in some instances being worked by our own ironmasters. Coal of every description is in anything but brisk request, so that the colliers are not working full time, nor are they likely to do so, for judging from appearances the weather is not likely to be of that severe character that will lead to a more than ordinary demand. For household qualities a rather steady business has been done from Clay Cross, and some other places with the M.-R. rails, but the prices at which it is sold are far from remunerative, for they are now lower than for some years past. Under such circumstances it is evident that unless there is a change for the better wages will have to come down. Steam coal is also very quiet, and the same is the case with other qualities. The make of pig-iron goes on much as usual, while business at the foundries goes on much as usual.

The medical officer of the Newbold and Dunston Local Board, in which are many collieries in what may be termed the Chesterfield district, in his report just issued specially alludes to the diseases to which miners and others are peculiarly liable. Coal miners and potters, it is stated, are more than ordinarily liable to affections of the lungs or respiratory organs, produced by the inhalation of an atmosphere charged with mechanical impurities, such as fine dust, particles of coal, clay, and other extraneous substances. In miners the characteristic symptom is known by the name of the "black lung," and according to Dr. Wynter the aggregate amount of sickness from chest complications experienced by this class of workmen between the ages of 20 and 60 amounts to 67 per cent. more than the average, whilst in potters it has been found that 61 per cent. of those actively employed die of lung diseases, the most common being a peculiar asthmatic condition, to which has been given the name of "the potter's disease." The preventive measures suggested



by the medical officer are frequent ablutions and the wearing of a wire gauze or other means of protection over the mouth, nose, and ears. The wearing of such a gauze is not likely to find favour amongst colliers, and they will no doubt go on as usual without being hampered with what they would consider a troublesome nuisance.

In Sheffield trade continues in a depressed state, and a large number of workmen are going about altogether out of employment, and the consequence is that there is now a greater amount of distress than has been experienced in the town for a very long time. A subscription has been entered into for the purpose of rendering the necessary assistance, and as is usually the case money has been sent in liberally, so that Sheffield will be able to maintain the unemployed without appealing for support outside its own boundaries. The Bessemer rail mills have been working steadily, but the other mills have not been doing so much. Some few orders are in hand for cutlery, Australia being still about the best customer we have, whilst the home demand is but moderate. Makers of cast-steel are by no means busy, although in one or two instances there is a fair output of some specialties. In saws, files, and similar goods there has been no change, the men not being fully employed.

It is, however, in the heavier branches that the least is doing, and in connection with which the greatest distress prevails. In heavy armour-plates, for instance, it is said that little or nothing is being done, as that valuable branch, almost entirely located in Sheffield, is in a state of transition, for shot and shell have penetrated 24 inches of iron, and it is expected that the experiments with iron covered with steel will shortly be repeated, and it is not unlikely that the result will be the founding of a new branch which will supersede the iron-plates altogether. The foundries are working tolerably well both in the town and neighbourhood, whilst the malleable works have been going along steadily. The puddlers recently employed at the Parkgate Works having refused to submit to a reduction of wages are now standing, but it is not expected that they will do so much longer, in the present state of trade, and the many hands that are unable to obtain work. The collieries, as a rule, are on short time, but the men are much better off than their brethren in any other part of the country. At one or two places it has been intimated to them that a reduction of wages will shortly be proposed to them, which there is every appearance will be refused. But there is very little doubt but what throughout South Yorkshire there will be notice given of a general reduction to the miners, seeing that colliery owners have been keeping their pits going for the benefit of those employed at them solely. House coal does not move off so well as might be expected for the time of the year, whilst the keen competition with other districts keeps prices down to a point that admits of scarcely any profit. Steam qualities are quiet, the exports to the North of Europe having declined with the closing of the Baltic, so that stocks are increasing at the pits. In other qualities of coal, and in coke as well, there is no change to be reported.

A fine of 50l. has been imposed on a firm of colliery proprietors at Nottingham, who had been found to have nearly a ton and a-half of gun and blasting powder on premises not licensed for storing it. The defendants had taken out a dynamite licence, and erroneously thought that this protected them.

#### TRADE OF THE TYNE AND WEAR.

Jan. 17.—There has been an increased demand for second-class steam coal in Durham, owing to the strike in Northumberland, and also a better demand for house and gas coal has sprung up; in some cases an advance of 6d. per ton has been got for steam coal. The lengthened holidays have enabled the masters to reduce the stock of coal, both large and small. The demand for coke is reduced owing to the putting out of blast-furnaces, and the make is reduced in consequence at the Consett Ironworks, the largest plate-making works in the world, one furnace having been blown out already. The dullness of the coke trade has had a bad effect on the coal trade in West Durham, and many of the pits are only worked three to four days per week; the depression is felt keenly both by the masters and workmen, and, as we stated last week, the sliding scale is quite likely to break down in Durham. Some of the owners who are not members of the association are seeking a reduction of wages. At South Medomsley, where 400 men are employed, the masters have given the men 14 days notice to quit unless they submit to a reduction of wages. At Whitburn the sinking by the Caudron system is proceeding. The machine is now completing the shaft to the full size of 17 ft. The settling of the debris in the small shaft is now prevented by putting down at intervals a certain quantity of soil and clay mixed. Fair progress has been made lately. Further experiments have been made with the locomotive, which is to be worked by compressed air at one of the collieries of Earl Durham on the Wear. So far the inventors are quite satisfied with the performance of the engine, and it is expected it will be got to work shortly underground. It is intended to employ it in hauling the coals from the deep workings, where horses are now employed.

#### REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Jan. 17.—Since last report little of importance has transpired with regard to the iron industry of this district. There are but few orders in hand, and during the week clearances have been insignificant, but this is often the case at the commencement of the year. Iron rails are quoted at exceedingly low prices, but these fail to tempt buyers to speculate to any extent, and during the past year the steel rail trade has been largely developed, and more attention has been paid to it by our local ironmasters, who seem to look affairs well in the face, and to desire to grapple with the difficulties which present themselves. The steelworks are fairly employed at the present time. The Iron Bar Trade is dull, especially the demand for foreign exportation. As to the Tin-Plate Trade, the improvement recently notified continues, but prices are still very low.

Although the past year was one of great depression, and quotations were very low, yet clearances foreign made from the three principal ports of the district compare favourably with those of the year 1876. In 1877, shipments to foreign ports were from Cardiff, 3,658,003 tons against 3,509,174 tons in the year 1876; Newport, 611,156 tons against 566,135 tons; Swansea, 563,630 tons against 632,759 tons; and Llanelly, 59,056 tons against 80,047 tons. These figures tend to show that Welsh coal is finding increased favour in foreign markets. Coastwise shipments during the same period were: Cardiff, 805,410 tons against 865,214 tons; Newport, 823,931 tons against 770,730 tons; Swansea, 257,395 tons against 262,586 tons; and Llanelly, 114,376 tons against 115,555 tons. Thus, it will be seen that coastwise clearances decreased in all cases except that of Newport. The import trade of this port is also improving, and the establishment of the Alexandra Dock has no doubt been a great thing for the town and port of Newport. During the past week shipments of coal have been well kept up; and the foreign demand for steam qualities continues fairly brisk. The enquiry for house qualities is only moderately good, and, in fact, the winter demand has been rather below the average. At the collieries, business has been the reverse of brisk during the last few weeks. The pits are working two, three, or four days a week; and it is rare to see full employment given. Low wages are, of course, the result; and, moreover, there is a complaint on the part of the men that the workings are overworked.

A good deal of distress still continues to prevail in the district, and both local and national efforts are still being made to alleviate the present state of affairs. Public meetings are being held, and everything possible done. At Aberystwyth a large amount of destitution prevails. There the ironworks have been long closed, and Mr. Bircham, Poor Law Inspector, having visited this portion of the district, declares that there is nothing so bad that he has met with either at Aberdare or Merthyr. Lord Aberdare has sent a cheque for 50l. for the fund at his disposal to the Chairman of the Pontypool guardians.

Another meeting of the Nant-y-Gloand Blaina Company has been called for the purpose of electing new directors.

The petition of Messrs. Luckess and Nash has been filed in the Newport Court of Bankruptcy. The step is alleged to have become

necessary in consequence of proceedings taken by Messrs. Watkins, Collins, and Powell, of Ross, who are the party in the unfortunate suit of Watkins v. Nash, and Powell v. Luckess, the result of which was decrees of foreclosure for the amount found due—principal, interest, and costs, somewhere about 10,000l. It appears that these proceedings were, moreover, rendered necessary in consequence of a creditor-debtor summons issued by the said parties, and for the purpose of protecting other creditors. Messrs. Perren, of Bristol, are the solicitors for Messrs. Luckess and Nash. The firm are highly respected in the Forest of Dean, and have been largely interested in commercial transactions. Towards them a great deal of sympathy is extended. As employers of labour, they were held in the highest respect by their workmen. Their collier operations at Whitecroft ceased some few months ago, under satisfactory conditions, which were notified at the time.

#### REPORT FROM THE NORTH OF ENGLAND.

Jan. 18.—The course of the Iron Trade of Cleveland since the advent of the New Year has not been so smooth as its best friends could desire. There has been a reduction of demand, and a diminished production, while prices are considered to be propped up only by the determined attitude adopted by the ironmasters, who refuse to sell any of their produce for less than the rates that have now been regularly quoted for a month, these rates being based on 41s. for No. 3 iron. At this figure makers who have ordinary facilities can make ends meet, and, perhaps, also clear a very small modicum of profit, but it requires a very philosophic mind to be content with the meagre profit that is now possible when all the risks and responsibilities of the business are fully taken into account. The total number of furnaces now in blast is only 104, several having been extinguished within the past few days. There is a good deal of talk as to still further reducing the make, which continues to exceed the legitimate demand, and it is probable that within the next few days steps will be taken with this end in view. The furnaces of Cleveland have during the last three months reached a higher average production per furnace than they ever did before. The average per furnace for the whole 12 months has been about 19,700 tons. This, however, is not the highest average attained in the country. Some of the Lancashire and Cumberland furnaces reach an average of 25,500 tons, and most of them are over 20,000 tons per annum.

The returns of the output of ironstone in the Cleveland district are not yet ready, but they are in course of preparation, and will be available in a few days. I am given to understand that the output for 1877 falls nearly a quarter of a million tons behind that of 1876. At the present time seven of the mines are laid off altogether, and a number of other mines are only working four to five days per week. The immense stocks of ore that have been accumulated will prevent the Cleveland mineowners from enjoying the return of better times so soon as they otherwise would.

In the finished iron trade the absorbing theme of the hour is the question of whether the coarse and silicious iron of Cleveland can be successfully adapted for the manufacture of steel. Mr. Isaac Lowthian Bell has been prosecuting experiments with this end in view for a period now exceeding six months, but so far he has not quite been able to exclaim "Eureka!" His experiments, however, have been attended with so great a measure of success that there are high hopes entertained as to their ultimate result. Mr. Howson continues to make interesting experiments with his new furnace, which was so greatly commended at the Newcastle meeting of the Iron and Steel Institute.

The Durham Coal Trade is in a very deplorable condition, in spite of the fact that two-thirds of the pits in Northumberland have now been stopped for more than a month. Few collieries are working more than three days per week, and it is proposed to close some of the coking collieries in the southern division of the county, where until now trade has been less depressed than elsewhere. There are growing complaints of distress amongst both colliers and ironworkers, and in most of the colliery villages the poverty now prevailing is greater than for many years past.

In both Middlesbrough and Darlington relief committees are now at work administering to the necessities of the indigent. It is found that the amount of genuine poverty is larger than was at first imagined, and the distress is certain to be intensified by the stoppage of new furnaces. Each blast-furnace in Cleveland employs from 50 to 60 men, not to speak of the much larger number of miners and others to whom it affords direct employment, so that the stoppage of even a single blast-furnace is rather a serious matter, quite apart from its commercial aspect.

The North of England iron manufacturers are making arrangements which will enable them to be very efficiently represented at the forthcoming Paris Exhibition.

The mineral traffic returns of the North-Eastern Railway continue to exhibit a considerable decline.

#### ROCK DRILLING AND AIR-COMPRESSING MACHINERY.

The use of rock-drilling and air-compressing machinery is now becoming a recognised necessity in connection with mining enterprise, and mine managers and directors are, therefore, alike anxious to obtain the fullest information as to the efficiency of the several makers in the market. Among the machines which have been most largely tested are those of Mr. J. G. CRANSTON, of Newcastle-on-Tyne, whose drill and air-compressor are both declared to be excellent. Just 12 months ago, it was stated by the Chairman of the Eberhardt and Aurora Company, that Capt. Drake was with Cranston's drills and compressors making better progress than he had anticipated, and that of the 6200 ft. of tunnel to be driven, 523 ft. had already been completed. Now, taking these figures in connection with recent Eberhardt and Aurora reports, the average work done per month can be readily ascertained. On Dec. 15 Capt. Drake reported that the tunnel contractors had completed their first contract of 500 ft., and that during the next three days work in the face of the tunnel was suspended; he adds, moreover, that from the time of first starting the machinery a year ago there has been no stoppage for repairs beyond about one day at a time for the necessary cooling off and cleansing of the boiler. Considering the approach of winter, Capt. Drake wisely concluded that it was the best time to make some necessary changes; he, therefore, took up about 1000 ft. of the 2-in. pipes conveying the air from the compressor and replaced them by 3-in. pipes, cleansed the boiler, and did such other work about the machinery as could not be attended to while running. But after only three days' stoppage the same takers commenced another contract for another 500 ft. upon the same conditions and at the same price—\$21.63 per linear foot.

Such reports as these must be particularly gratifying to Mr. Cranston, of Newcastle-on-Tyne, as the inventor and manufacturer of the machinery, but the Eberhardt and Aurora shareholders will naturally ask what is the average progress? And fortunately an answer to this can readily be given by reference to Capt. Drake's report of Dec. 22, which states that the length of the tunnel was then 2363 ft., the face being in siliceous lime and spar, and all running well. Now, from the date of the meeting to Dec. 22 was but just over 11 months, and the difference between 523 ft. and 2363 ft. in 1840, giving very nearly 170 ft., or (say) 28 fms. per month, taking good and bad together; but this average was evidently lowered by some of the early work before the men became accustomed to the machinery, for on Jan. 12 Capt. Drake wrote that "the work in the tunnel is progressing rapidly." The tunnel is now in 2400 ft., and being pushed forward at the rate of 200 linear feet per month. One of the peculiar features of this drill is that the drill tool can be rotated substantially and readily at will by hand, so as to suit the uneven nature or hardness of the rock being drilled, and does not rely on any definite pitch or stroke of the piston-rod in order to secure the desired rotary motion. With regard to the relative cost of machine drilling and drilling by manual labour, some opinion may be formed from the comparative trials made at Ferryhill on the North-Eastern Railway, where work that cost 1s. per foot by hand was regularly done by the machines at 24d. per foot. It may fairly be estimated that 28 fms. per month is at least five times faster

than would have been possible with hand labour, and it appears that this enormous advantage is secured at one-fifth the ordinary cost.

#### THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week the market has been quiet, owing to the settlement intervening, but there has been rather more business doing owing to a slight spurt in copper shares. The feeling generally is unaltered; something is wanting to impart the great activity of former years to the markets, and until then the movements cannot obtain great importance. At the same time some concerns must be able always to command a considerable profitable home business, and it is to such investors must look at present. The new account opened on Monday, for settlement Jan. 31, has begun slightly more active. The last day of the account will be Monday, Jan. 28.

In shares of iron and coal concerns Ebbw Vale have improved  $\frac{1}{2}$  per share, while both classes of Benhar have fallen  $\frac{1}{2}$ . Monkland,  $\frac{3}{4}$ , also Cairnfield, Marbella, Nant-y-Gloand Blaina (pref.), each  $\frac{1}{2}$ . The sales of Scottish Australian for the month of October have been 14,984 tons. A good deal of business has been done in A. Knowles and Sons, from  $\frac{1}{2}$  to 1 prem. West Cumberland are at 6 $\frac{1}{2}$  to 7 $\frac{1}{2}$ . Cardiff and Swansea stand at 1 $\frac{1}{2}$ ; Chatterley, 1 $\frac{1}{2}$ ; Chapel House, 2 $\frac{1}{2}$  to 3; Chillingham, 3 $\frac{1}{2}$ ; Crown Preserved, 1 $\frac{1}{2}$ ; Great Western, 2 $\frac{1}{2}$ ; Lyvni, Tendu, and Ogmore, 4 to 5; Mersey, 28s. 9d. dis.; Nant-y-Gloand Blaina (pref.), 14 to 15. Newport Abercrombie, 4 to 4 $\frac{1}{2}$ ; ditto 8 per cent. (Glo.),  $\frac{1}{2}$  pm.; New Sharlston (pref.), 3 $\frac{1}{2}$  to 4 $\frac{1}{2}$ ; Rhonda Merthyr, 11; Rhymney (new), 5 $\frac{1}{2}$ ; Sheepsbridge, 18 $\frac{1}{2}$  dis.; Sikerne, 5 $\frac{1}{2}$ ; South Wales, 5 $\frac{1}{2}$ ; Staveley, A., 23 $\frac{1}{2}$  prem.; ditto B., 2 $\frac{1}{2}$  premium; Tredegar, A., 10 $\frac{1}{2}$ ; West Mostyn Twelve per Cent. First Pref., 8 per cent.

Excepting a small decline of 6s. per share on Russia, the business in foreign copper concerns has resulted in a general good advance; Rio Tinto 5 per cent. have risen as much as 5s. 5s.; ditto 7 per cent., 3s.; ditto shares, 30s.; Tharsis, 22s. 6d.; ditto (new) 20s.; and Huntington, 2s. The important announcement has been made that the Tharsis Company have made an arrangement with the Rio Tinto and Messrs. Mason and Barry, of London, for regulating the price of copper pyrites, with the view of obtaining better prices for their output. This news, in connection with the former reports from the copper market, has imparted more confidence to investors. The estimates as to what the next dividend of the Tharsis will be vary from 15 to 20 per cent.; it is thought that though low prices have ruled for copper during the year the increased output may possibly enable the company to hold its own. Cape shares are firmer from the same cause, the reports from the mine and returns being just the same. Cesena Sulphur shares are offered. Kapunda are at 1s. 3d. Paulicillo, 25s. to 35s. Yorke Peninsula, 4s. to 6s.; ditto (pref.), 17s. 6d.

In shares of home mines Glasgow Jarados have been in request on the announcement made on Tuesday that a dividend of 2 $\frac{1}{2}$  per cent. will be recommended for the year ending Dec. 31, payable on March 5, trying forward a balance of 1891. This company's sale of copper ore to-day (computed 200 tons) is not much less than last month's, but from 40 to 50 tons less than the corresponding sales for some years back. The original shares are at 20s. to 23s.; new shares, 12s. 6d. to 15s. At the Bampfylde meeting, after adopting the report and accounts, it was decided to adjourn till to-morrow. The pro rata subscription of 1s. 6d. per share was approved of, and it has been agreed if this does not succeed to reconstruct the company with a capital of 50,000l. The new company to issue 1l. shares, paid up to 10s. each, in exchange for the shares of the present company. Larur-t shares are firmer. Great Laxey are quoted ex div. at 45s. 6d., at 21 $\frac{1}{2}$  to 21 $\frac{3}{4}$ . The general meeting of East Chiverton will be held on Jan. 29, to pass the accounts for the 16 weeks ending Dec. 1. Cambrians still attract attention from the numerous circulars issued recommending them, though it is well to add it would look better if some more tangible success was attained before such extravagant results were held forth, and it is a pity the state of affairs permits such irresponsible statements to be freely made. Tin shares are neglected, and may be so till tin takes a rise again. Great Retallacks unaltered. Combmartin are at 1s. 6d. Kilfrith, 2s. 6d. Leadhills, 30s. to 30s. Medlyn Moor, 30s. Mwyndy, 45s. North Laxey, 6s. to 7s. Pary's Mountain, 9s. Penstruthal, 5s. 6d. Rookhope, 17s. 6d. to 20s. South Cundorow, 9 to 9 $\frac{1}{2}$ . Tankerville, 85s. to 90s.; and West Tankerville, 12s. to 17s.

In shares of gold and silver mines Richmond have improved 5s., the week's run being \$105,000. The Richmond Mine appears to be a good one, and we hope the rumour that by the next meeting, or when some of the stock is loaded over on other shoulders, the property will again be seized by the Americans will prove false. The Colorado Ferrie, also a good mine, is in utter discredit from the unjust conduct of Americans, for which, apparently, redress cannot be obtained. As to the Exchequer, also, the heavy interest the directors have in the concern renders investors inclined to support it, but there must be a change for the better in the management. Port Phillip has made a profit for the month ending January 2 of 1851l., against 1040l. for the month ending Nov. 7. Chontales in November, owing to the dry weather, has only made 149l., but Javali has made about 400l. The Javali shares are apparently now too low; the mine has made regular monthly profits for some time back of 3000l. to 7000l., which warrant the shares selling considerably higher. The clean-up for the month of December at the Original Amador Mine of London and California Company is estimated at \$7000. Owing to dry weather, the Sierra Buttes mills were idle in December, but the result of the Plumas Eureka working was—Receipts, \$38,638; total California expenses, \$19,262. The produce of St. John del Rey for December was 45,500 lbs., against 17,531l.; and that of Don Pedro North del Rey is stated at 4150 lbs. Antioquia are at 12s. Cedar Creek, 5s. Chontales, 13s. Chicago, 35s. Don Pedro North del Rey, 6s. 3d. to 8s. 9d. Eberhardt, 7 $\frac{1}{2}$ l. Emma, 1s. 3d. to 3s. 9d. Flagstaff, 20s. Frontino, 50s. Last Chance, 12s. 6d. to 15s. Port Phillip, 13s. Santa Barbara, 25s. 6d. South Aurora, 3s. to 5s.

MONTEZUMA GOLD AND SILVER MINE.—This is understood to be one of the best mines in New Mexico, and as there is some prospect of it being owned in England, the following particulars may be useful. There is a good title (United States Land Grant), and the mine is believed to be so rich that it will return all the money invested in two years. Less than 12,000l. capital is estimated all that would be required, 8000l. thereof being the purchase money. It is noteworthy that \$80,000 have already been expended in opening it out. The moderate working capital will suffice to erect reduction works, and the company has a large tract of land with water and timber rights. Productive work can be begun almost at once. The climate permits work out doors in summer and winter. Common labour is \$1 per day, and haulage also moderate, but the railroad will reach Cunarón, 19 miles from the mine, in a short time.

J. GRANT MACLEAN, Stock and Share Broker.

Post Office Buildings, Stirling, Jan. 17.

LEAD ORES.					Purchasers.	
Date.	Mines.	Tons.	Price per ton.			
Jan. 7	Monydd Gorddu	10	£14 14 0	.....	Nevill, Drue, & Co.	
11	Minera	51	11 16 0	.....	ditto	
—	ditto	55	11 8 0	.....	Walker, Parker, & Co.	
—	ditto	18	11 18 0	.....	St. Helens Lead Co.	
—	ditto	36	11 11 0	.....	A. Eytton.	
—	ditto	16	11 11 0	.....	ditto	
—	Park	20	12 6 0	.....	ditto	
14	South Darren	30	16 13 0	.....	Nevill, Drue, & Co.	
15	Foxdale	110	12 15 0	.....	ditto	
—	Plymmon	20	11 12 0	.....	ditto	
17	Great Dyliffe	60	11 15 0	.....	Adam Eytton.	
—	West Tankerville	35	12 3 0	.....	G. Burr.	

HORNACHOS (Silver-Lead).—This company sold on Jan. 3, to Messrs. Nevill, Drue, and Co., 50 tons 10 cwt. 1 qr., realising 1640l. 1s. 10d.

BLENDED.					Purchasers.	
Date.	Mines.	Tons.	Price per ton.			
Jan. 11	Minera	36	£4 1 6	.....	Bagillt Smelting Co.	
—	ditto	36	4 1 6	.....	ditto	
—	ditto	12	4 1 6	.....	Bagillt Smelting Co.	
—	ditto	12	4 1 6	.....	Richardson & Co.	
—	ditto	22	3 15 6	.....	Bagillt Smelting Co.	
—	ditto	28	4 10 6	.....	Vivian and Sons.	
—	ditto	26	3 12 0	.....	Bagillt Smelting Co.	

PERUVIAN TIN ORE SOLD IN LIVERPOOL.					Purchasers.	
Date.	Mines.	Tons.	Price per ton.			
Jan. 16	.....	5	£32 15 0	.....	R. R. Mitchell and Co.	
.....	.....	5	35 0 0	.....	Redruth Tin Smelting Co.	

Sampled Jan. 2, and sold at the Royal Hotel, Truro, Jan. 17.

COPPER ORES.					Purchasers.	
Mines.	Tons.	Price.	Mines.	Tons.	Price.	
Devon Great Consols.	85	£1 16 6	Gunnislake (Clitters)	98	£4 11 0	
ditto	84	1 12 6	ditto	98	4 10 6	
ditto	81	1 12 6	ditto	98	4 10 6	
ditto	76	1 12 6	ditto	98	4 10 6	
ditto	74	1 12 6	ditto	98	4 10 6	
ditto	73	1 15 0	ditto	98	4 10 6	
ditto	72	1 5 0	ditto	98	4 10 6	
ditto	71	1 15 0	ditto	98	4 10 6	
ditto	70	1 15 0	ditto	98	4 10 6	
ditto	67	5 7 6	ditto	98	4 10 6	
ditto	61	1 11 6	ditto	98	4 10 6	
ditto	50	1 15 0	ditto	98	4 10 6	
South Caradon	62	4 0 6	ditto	98	4 10 6	
ditto	58	4 1 0	ditto	98	4 10 6	
ditto	57	3 12 0	ditto	98	4 10 6	
ditto	56	5 15 6	ditto	98	4 10 6	
ditto	55	10 1 6	ditto	98	4 10 6	
ditto	52	4 16 6	ditto	98	4 10 6	
ditto	47	10 6 0	ditto	98	4 10 6	

TOTAL PRODUCE.					Purchasers.	
Mines.	Tons.	Price.	Mines.	Tons.	Price.	
Devon Great Con.	929	£2585 0 0	Hington Down	177	£510 19 0	
South Caradon	470	2560 8 0	Phenix	170	653 3 0	
Gunnislake (Clit.)	370	1694 13 0	Bedford United	116	350 4 0	
Marke Valley	340	1053 5 0	Dingle's Ore	10	30 6 0	
Glasgow Caradon	300	660 18 0				

Average standard ..... £294 4 0 | Average produce ..... £23 12 6

Average price per ton ..... 2752 | Quantity of fine copper 188 tons 9 cwt.

Quantity of ore ..... 2752 | Amount of money ..... £10,095 15 0

LAST SALE.—Average standard ..... £29 7 0 | Average produce ..... £24

Standard of corresponding sale last month, and 86 s. 0.—Produce, 8 $\frac{1}{2}$

\* The complete Ticketing will be published in next week's Journal.



## MINERALS WANTED.

**ADVERTISER** requires REGULAR CONSIGNMENTS of GOOD SULPHUR ORE (PYRITES), either cupreous or non-cupreous; also, GOOD BLENDE, and SOFT MANGANESE ORE. Address, "Pyrites," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

## TO BUILDERS.

**TENDERS** are INVITED for the ERECTION of an ENGINE and BOILER HOUSE, at a SILVER-LEAD MINE, three miles from Llaneston, Cornwall, of which a plan and specification can be seen at the office of the Secretary, 110, Cannon-street.

The tenders must name a lump sum for the whole work, and be sent to the Secretary of the Greystones Silver-Lead Mine, 110, Cannon-street, E.C.

**WANTED.—MINING AGENT.**—One who has been a Mine Agent in NORWAY for several years DESIRES a SITUATION in the same capacity and country. Address, "P. A.," 12, Goldington Crescent, St. Pancras, London.

**WANTED.—MINING AGENT,** requiring a SITUATION in ENGLAND or WALES. Has had thirty-five years' experience in MINING. First instance, apply to "Omega," MINING JOURNAL Office, No. 26, Fleet-street, London, E.C.

**WANTED.—A CORNISHMAN,** at present Resident Manager of a large COPPER MINING and SMELTING ESTABLISHMENT, will be OPEN to a RE-ENGAGEMENT in December. Speaks and writes French and German, and has some knowledge of Spanish. Unexceptionable references. Address, "Ass. Inst. C.E.," MINING JOURNAL Office, 26, Fleet-street, London.

## TO MINE AGENTS.

**WANTED IMMEDIATELY,** an AGENT to TAKE the ENTIRE MANAGEMENT of the SOUTH DARREN SILVER-LEAD and COPPER MINE, in CARDIGANSHIRE. Must have had considerable practical experience of Mining in that district. Address, with copies only of testimonials, and stating salary required, to J. H. MURCHISON, Esq., 8, Austinfriars, London.

## SULPHATE OF BARYTA.

**AN OPENING** in TENNESSEE, U.S.A., for a Man thoroughly acquainted with the GRINDING and MANUFACTURE of SULPHATE OF BARYTA in all its details. Apply, stating age, salary, and experience, to the Secretary, Southern States Coal, Iron, and Land Company (Limited), Stockton-on-Tees.

## CARBONATE OF BARYTES IN LUMP.

**PROPRIETORS** of MINES and HOLDERS of ABOVE may SEND SAMPLES, stating contents of BARYTA and LIME, with prices, to—

JAS. S. MERRY, MINING OFFICES, SWANSEA.

## IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867,

## THE ANGLO-AUSTRALIAN GOLD MINING COMPANY (LIMITED).

**NOTICE** IS HEREBY GIVEN, that all CREDITORS of the ABOVE-NAMED COMPANY are REQUIRED, on or before the 2nd February next to SEND in their NAMES and ADDRESSES and the AMOUNTS and PARTICULARS of their SEVERAL CLAIMS to the undersigned, Liquidator of the said company.

8, Austinfriars, London, 16th January, 1878.

## ANGLO-AUSTRALIAN GOLD MINING COMPANY (LIMITED).

## IN LIQUIDATION.

**IN ORDER** to PARTICIPATE in the DIVISION of the ASSETS about to be made, ALL HOLDERS of SHARE WARRANTS to BEARER of the ANGLO-AUSTRALIAN GOLD MINING COMPANY (LIMITED) are REQUESTED to FORWARD to the undersigned, on or before the 2nd February proximo, particulars of the NUMBER of such WARRANTS, the NUMBER of SHARES comprised in the same, and the distinctive NUMBERS of the SHARES.

8, Austinfriars, London, 16th January, 1878.

## PONTGIBAUD SILVER-LEAD MINING AND SMELTING COMPANY.

**AN EXTRAORDINARY GENERAL MEETING** of the shareholders of the above company will take place in Paris, at the offices of the company, No. 15, Rue de Châteaudun, on SATURDAY, the 2nd February next, at Three o'clock in the afternoon precisely.

This Extraordinary General Meeting, at which the transformation of the company and the adoption of the new "Statute" will be definitive, is convened in conformity with Article 4 of the Law of 24th July, 1867.

The report of the commission appointed on the 1st December last will be submitted to this meeting. This report will be printed and ready for distribution amongst the shareholders after the 21st January instant. According to Article 27 of the Law of 24th July, 1867, each shareholder, whatever may be the number of his shares, may take part in the proceedings of this meeting, with the number of votes fixed by the Statute, but not to exceed 10.

Shareholders may be represented by proxy, but no one can be the bearer of a proxy unless he himself is entitled to be present at the meeting.

JOHN TAYLOR AND SONS.

London Agency, 5, Queen-street-place, E.C., 16th January, 1878.

**HENRY WIGGIN AND CO.**  
(LATE EVANS AND ASKIN),  
NICKEL AND COBALT REFINERS,  
BIRMINGHAM.

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BERSE COTTAGE, NEAR WREXHAM.  
Fourteen years at the Great Miners Mines.  
MINES FAITHFULLY REPORTED ON, AND MINING ACCOUNTS CAREFULLY AUDITED.

**LECTURES ON ROCKS AND METALLIC MINERALS,** at KING'S COLLEGE, by PROF. TENNANT, F.R.S., are given on Wednesday and Friday mornings from Nine to Ten o'clock; also an Evening Course on Thursdays from Eight to Nine. The Lectures commence on Wednesday next, Jan. 23, and will be continued to Easter. The public are admitted on paying the College fees.

Persons unable to attend public lectures can have private instruction in Geology and Mineralogy of Prof. TENNANT, at 149, Strand, W.C.

**COLLIERY MANAGERS' EXAMINATIONS.**—That a very large proportion of the candidates who have presented themselves for examination for the Certificate of Competency have failed is well known, and although it is probable that nine-tenths of those rejected may attribute their failure to absolute want of knowledge, it is equally certain many would have succeeded in scraping through had they been better informed as to the precise nature and scope of the examinations to which they had to submit themselves. The question whether this has been advantageous to the holders of certificates as a body would, perhaps, have been answered in the affirmative; but still it is only fair to all candidates that the details mentioned should be readily ascertainable. The required information is now furnished in a neat little volume\* by Mr. Alfred Swinney, of the Shirecliffe Colliery, Durham, who has carefully collected the instructions for candidates issued by the several examination boards, selected some of the more characteristic questions put in each district, and given answers to them; and also written a brief outline of every subject upon which questions are likely to be asked. But that which will probably be of more use than anything else to the student is the advice which he gives as to the mode of preparation and best method of proceeding whilst undergoing examination. The first point which will attract the attention of the reader is the widely different standards fixed by the examiners in the several districts, and also the distinctly different views which appear to have been taken as to what kind of knowledge is necessary. Although only extending to 128 pages, the subjects which Mr. Swinney deals with are—the Coal Mines Regulation Act, geology, boring, sinking, tubbing, walling, opening out, winning and working of a mine, ventilation, gases met with in mines, safety-lamp, barometer, thermometer, and properties of atmospheric air, surveying levelling and measurements of areas, general scholarship, steam, steam boilers, and steam-engines, pumps, ropes, cages and shafts, and various other arts and sciences. Although it is not to be supposed that the study of so small a work as that of Mr. Swinney will enable a candidate to pass the examination, he furnishes much useful information and many valuable suggestions, so that a careful perusal of it cannot fail to be profitable.

\* "Hand-book to the Examinations for Colliery Managers' Certificates of Competency." By ALFRED J. G. SWINNEY. London: Colliery Guardian Office, Essex Street.

**BOILER AND FACTORY CHIMNEYS.**—Since the more general application of steam in connection with industrial pursuits the building of boiler and factory chimneys has received so large an amount of attention both from engineers and architects that they have been able to lay down definite rules upon the subject, which secure the greatest stability without unnecessary consumption of material. The whole subject has been very ably treated of in a neat little volume—"Boiler and Factory Chimneys, their draught-power and stability; with a chapter on Lightning Conductors." By ROBERT WILSON, A.I.C.E.—just issued by Messrs. Crosby, Lockwood, and Co., of Stationers' Hall-court. By way of frontispiece a very useful table of dimensions of chimneys is given, and in the four chapters into which the book is divided, chimney-draught, stability, building practice, and lightning conductors are in turn treated of. The subject is treated both practically and mathematically, and supplies precisely such information as the chimney builder is likely to require. The book certainly deserves an extensive circulation.

## In the Court of the Vice-Warden of the Stannaries.

**IN THE MATTER** of the COMPANIES ACT, 1862 and 1867, and of the NEW CONSOLS SILVER AND ARSENIO WORKS (LIMITED).—Notice is hereby given, that ALL CREDITORS of the above-named company are required, on or before Saturday, the 2nd day of February next, to SEND in their NAMES and ADDRESSES, and the AMOUNTS and PARTICULARS of their several CLAIMS, addressed to the Voluntary Liquidators of the said company, care of Mr. WATSON SMITH, at his office, No. 5, Austinfriars, in the City of London.

(Agents for FINE and Co., 3, East India Avenue, London, E.C., Solicitors for the Voluntary Liquidators.)

Dated Truro, this 12th day of January, 1878.

## In the Court of the Vice-Warden of the Stannaries.

**IN THE MATTER** of the COMPANIES ACTS, 1862 and 1867, and of the AMBROSE LAKE TIN AND COPPER MINING COMPANY (LIMITED).—TO BE SOLD, under the direction of the Registrar of the said Court, on Monday, the 28th day of January instant, at Eleven o'clock in the forenoon, at the AMBROSE LAKE MINE, in the parish of ST. NEOT, near Liskeard, within the said Stannaries, in One or more Lots (subject to such conditions as shall be then and there stated), all that the INTEREST of the said company of and in the SETTS under which its mining operations have been carried on, together with the WHOLE of the

**MINING PLANT, MACHINERY, MATERIALS, AND EFFECTS,** Belonging to the said company, and being within and upon the said Mine, and comprising—  
ONE 40 inch cylinder PUMPING ENGINE, 10 ft. stroke, ONE BOILER, 10 tons, with economiser.  
ONE 8 head IRON STAMPS AXLE, with heads, lifters, guides, &c.; a quantity of pitwork, 4, 5, 6, 7, and 9 in.; and a large quantity of other materials and effects in general use in mines.  
To inspect the above, apply to the Bailiff in charge at the Mine; and for further particulars to the Official Liquidator of the said company at the Stannaries Court Office, Truro.  
(Solicitors for the Official Liquidator.)  
Dated Stannaries Court Office, Truro, Jan. 16th, 1878.

## In the Chancery of the County Palatine of Lancaster.

## LIVERPOOL DISTRICT.

## LITTLE v. BOUNDY.

**TO BE SOLD, BY AUCTION,** on Thursday, the 31st day of January, 1878, at 3-30 o'clock P.M., at the Globe Hotel, Whitehaven, by MR. JAMES JACKSON, ALL that IRON ORE MINE, known as

## THE ENNERDALE MINE.

In the township of Keltou and Windle, in the parish of Lamplugh, in the county of Cumberland, and about two miles from Rowrah station, on the Whitehaven, Cleator, and Egremont Railway, together with the ENGINE, winding gear, pumps, engine-house, cottages, mine agent's house, workshops, plant, tools, and stores; and also together with the ore on the bank, estimated at about 1100 tons, if not previously sold.

The grant is a very extensive one, comprising about 260 acres, and is held on lease from Lord Lonsdale, for 20 years, from the 1st day of June, 1870, on very reasonable terms. A large sum has been expended in opening up the mine, and a considerable quantity of good ore has been obtained.

The property is surrounded by the celebrated mines of Messrs. Baird, who have raised enormous quantities of ore of the best quality, and there is not any doubt the same veins run through this property.

The Rowrah and Keltou Fell Railway crosses the land, giving facility for dispatching the ore at a trifling cost.

For further particulars and conditions of sale, apply to the District Registrar of the Court of Chancery of the County Palatine of Lancaster, at his office, Municipal Buildings, Dale-street, Liverpool; to the Auctioneer, to Mr. J. C. PARKINSON, Solicitor, Commerce-court, 11, Lord-street, Liverpool; or to T. and T. MARTIN, 45, Castle-street, Liverpool, Plaintiffs' Solicitors.

**IN VOLUNTARY LIQUIDATION** UNDER THE COMPANIES ACT, 1862.

## THE BANTRY BAY BARYTES QUARRY (LIMITED).

**TO BE SOLD, BY TENDER,** ALL THE INTEREST of the above named company of and in certain BARYTES MINES or QUARRY, known as the

## BANTRY BAY BARYTES QUARRY.

Situate and being part of the FARM and LANDS of Dellyginah, in the parish of Kilmacogne, Barony of Bele and Bantry, in the county of Cork, together with the MACHINERY and PLANT thereon.

The mines are held under a lease for 31 years from the 1st day of June, 1866, and contain 150 acres or thereabouts.

Orders to inspect the property can be had of the Liquidator, as under.

The Liquidator will receive Tenders up to the 1st day of February next, but does not bind himself to accept the highest or any Tender.

The lease may be seen, and particulars had of—

EDWARD ASHMEAD, Liquidator, 62, Cornhill, London.

10th January, 1878.

**TO BE SOLD, BY PRIVATE TREATY,** a HANDSOME and MINERAL FREEHOLD ESTATE, in the county of MERIONETH, situate two and a half miles from a projected railway from Bala, containing

POTTER'S LEAD, SILVER-LEAD, PLATINUM, and GOLD, with a plentiful supply of water power, machinery and plant; also beautifully situated, and well adapted for a gentleman's private residence.

Address, "H.," W. H. Smith and Son, Newagents, Manchester.

**TO BE SOLD, AS A GOING CONCERN** (owing to the advanced age of present proprietors), a FREEHOLD SILVER-LEAD MINING PROPERTY, situated in RHEINISH PRUSSIA.

Principals, or their solicitors, are requested to apply to "U. G.," 28, Tenet-street, Moorfields, London.

**FOR SALE,** a 14-horse power PORTABLE STEAM ENGINE, with last motion vertical gear, also gear to wind and pump.

A 25-horse power PORTABLE.

An 18-horse power VERTICAL STEAM ENGINE, and a 9½ in. cylinder VERTICAL ENGINE, and combined winding drum.

A 6-ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER.

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## FORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS as

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## FORTH BANKS OIL WORKS,

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Beg to draw the attention of COLLIERY OWNERS and ENGINEERS to the Oils prepared by their special process. They never clog nor corrode, but keep the bearings cool and clean, and will be found the best and most ECONOMICAL LUBRICANTS at present in the market, being very DURABLE, UNIFORM IN QUALITY, and CHEAP. Prices, from 2s.

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## MAPS OF THE MINES, AND OF UTAH TERRITORY.

## FRO



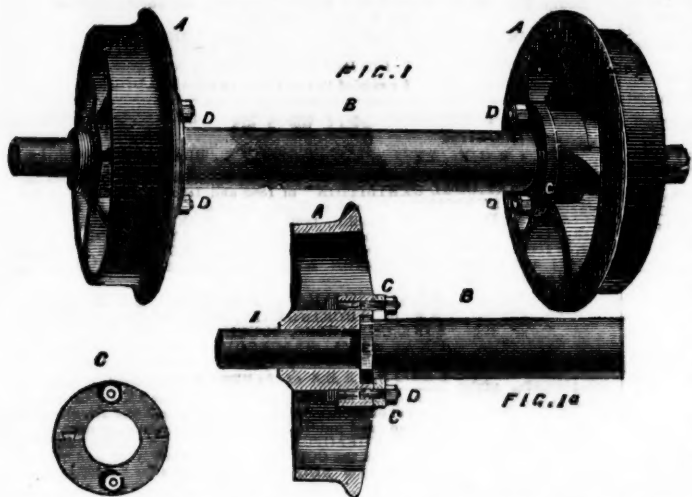
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HAVE PLEASURE IN CALLING THE ATTENTION OF THE MINING WORLD TO THEIR

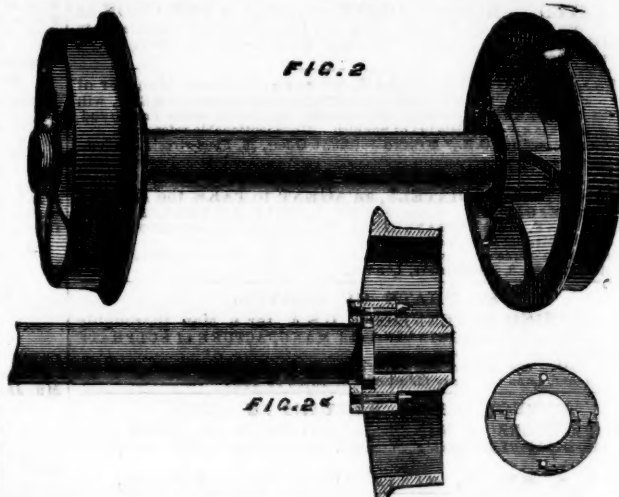
## Patent Method of Fitting up Cast Steel Wheels and Axles.



Figs. 1 and 2 show a longitudinal view and plan of a pair of corf wheels and axles fitted up for outside bearings. A A, are the wheels; B, is the axle; C C, the washers; D D, the bolts; E, the collar on axle B; and F, the recessed boss in the wheel.

The wheel is cast with a recessed boss in the inside, made to any shape, corresponding in shape and depth with a collar formed on the axle. Figs. 2 and 2a show a longitudinal view and plan of a pair of corf wheels fitted up for inside bearings. The washers are secured to the boss of the wheel in outside bearings by bolts and nuts, and in inside bearings by set screws.

The advantages of the above system are:—A, the singular simplicity of fitting—enabling any inexperienced person, with the aid of a spanner or screw-driver, to detach the wheels from the axle or fit them together in a very short time. B, perfect solidity, the wheels and axles becoming as one piece. C, durability, no need of putting the wheels or axles into the fire, under any circumstances, which is so detrimental to wheels, rendering them remarkably brittle, and which under other systems are detached from the axle by the aid of fire. D, economy in fuel and wages, saving hundreds of pounds yearly to large coal owners. The



important desiderata secured by this invention of simplicity (so often wanted in patents), solidity, durability, and economy, have not only been amply illustrated by the technical journals interested in the progress of mining operations in this country, but have at once been fully recognised by leading authorities in the mining world.

## HARRIS'S PATENT WROUGHT-IRON WINDOWS.

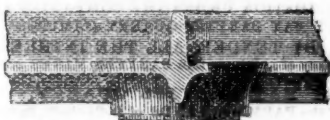
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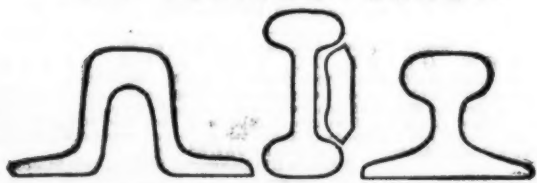
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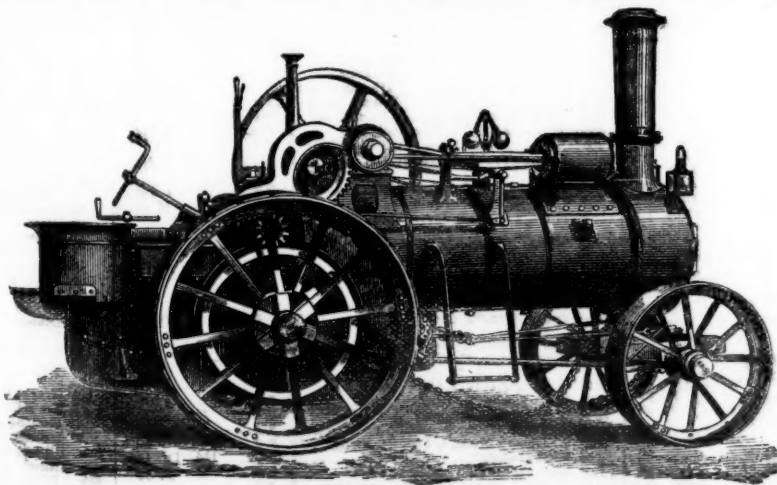
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## THE MINING SHARE LIST.

## BRITISH DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk. Clos. pr.	Total divs. For sh. Last pd.
1500	Alderley Edge, c, Cheshire	10 0 0	—	12 11 8... 0 5 0... Jan. 1876
30000	Bampfylde, c, i, Devon	1 0 0	—	0 2 0... 0 2 0... June 1875
4000	Brookwood, c, Buckfastleigh	1 18 0	—	0 16 0... 0 2 0... Nov. 1875
2000	Bryn Alyn, c, Denbigh	10 0 0	—	0 7 0... 0 7 0... Jan. 1877
6400	Cashwell, c, Cumberland	2 10 0	—	1 9 6... 0 2 0... Aug. 1876
1000	Carn Brea, c, i, Illogan	26 7 6	—	392 0 0... 1 0 0... Feb. 1874
2450	Cook's Kitchen, c, Illogan	34 4 9	—	11 17 0... 0 7 6... Jan. 1875
10240	Devon Gt. Consols, c, Tavistock	1 0 0	—	116 15 0... 0 5 0... July 1877
4296	Dock's, c, i, Camborne	10 14 10	—	112 1 3... 0 5 0... Dec. 1877
5000	East Black Craig, c, i, Scotland	8 0 0	—	0 10 0... 0 10 0... Feb. 1877
300	East Darran, c, i, Cardiganshire	32 0 0	—	235 10 0... 1 0 0... Aug. 1876
6400	East Pool, c, i, Illogan	0 9 9	—	15 4 9... 0 6 6... Dec. 1877
4000	Glasgow Carr, c, i, 10,000 15a. p.	1 13 0	—	0 12 10... 0 2 0... Mar. 1877
7500	Goreed and Marley Cons., c, i, Flint	2 10 0	—	0 5 0... 0 5 0... Aug. 1877
15000	Great Dyllife, c, i, Montgomery	4 0 0	—	0 2 6... 0 2 6... Apr. 1877
15000	Great Laxey, c, i, Isle of Man	4 0 0	—	22 13 0... 0 10 0... Oct. 1877
616	Gt. Retallack, c, i, Ferranabuloe	5 18 6	—	0 1 6... 0 1 6... May 1876
23000	Gt. West Van, c, i, Cardigan, pref.	2 0 0	—	0 2 0... 0 2 0... Aug. 1874
6400	Green Hurth, c, i, Durham	0 8 0	—	1 15 0... 0 3 0... Aug. 1877
23000	Grogwilion, c, i, Cardigan	2 0 0	—	0 12 0... 0 1 0... Feb. 1877
9830	Gunnislake (Clitters), c, i, e	5 8 0	—	0 13 9... 0 4 0... Oct. 1876
1024	Herodfoot, c, i, near Liskeard	8 10 0	—	62 5 0... 0 15 0... Oct. 1872
80000	Holmbush, c, c, s, i, Callington	1 0 0	—	0 4 6... 0 6 6... Sept. 1877
2800	Isle of Man, c, i, Isle of Man	26 0 0	—	82 5 0... 0 10 0... Feb. 1877
20000	Leadhill, c, i, Lanarkshire	6 0 0	—	0 12 0... 0 8 0... Oct. 1877
400	Lisburne, c, i, Cardiganshire	18 10 0	—	584 10 0... 1 0 0... Nov. 1877
14000	Llanidloes, c, i, Montgomery	8 0 0	—	0 9 0... 0 4 0... Nov. 1876
5120	Lovell, c, i, Wendron	0 16 0	—	0 17 6... 0 1 6... Jan. 1874
9000	Marke Valley, c, i, Linkinhorne	5 8 0	—	7 15 0... 0 2 0... Jan. 1876
10000	Mellancor Copper, Hayle	2 0 0	—	0 2 0... 0 2 0... Jan. 1878
9000	Minera Mining Co., c, i, Wrexham	6 0 0	—	67 8 0... 0 3 0... Oct. 1877
20000	Mining Co. of Ireland, c, i, e	7 0 0	—	23 17 0... 0 2 6... Jan. 1878
444	North Bury, c, i, Chacewater	2 1 0	—	1 10 0... 0 1 0... July 1877
10000	North Hendre, c, i, Wales	2 1 0	—	1 12 0... 0 2 6... Aug. 1877
6000	Pedra-dracon, c, i, Redruth	0 8 0	—	0 9 0... 0 2 0... June 1877
5000	Penhall, c, i, St. Agnes	3 2 6	—	3 13 6... 0 5 0... Nov. 1877
6000	Pennant, c, i, bar, North Wales	6 0 0	—	0 5 0... 0 5 0... Mar. 1877
45798	Penrith, c, i, c, Gwennap	2 0 0	—	0 2 8... 0 8 0... Nov. 1876
12000	Phoenix, c, i, W. Phoenix, c, i, Link.	5 7 3	—	2 9 6... 0 4 0... Nov. 1872
18000	Prince Patrick, c, i, Holywell	1 0 0	—	0 14 0... 0 1 3... Jan. 1876
10000	Red Rock, c, i, Cardigan	2 0 0	—	0 2 0... 0 2 0... July 1877
12000	Roman Gravel, c, i, Balop	7 10 0	—	7 10 0... 0 8 6... May 1877
512	South Canard, c, i, Cleer	1 5 0	—	741 10 0... 0 2 0... Dec. 1877
6128	South Conduff, c, i, Camborne	6 6 6	—	3 5 0... 0 7 0... Jan. 1878
12000	St. Harmon, c, i, Montgomery	3 0 0	—	0 6 0... 0 3 0... July 1877
10000	So. Fr. Patrick, c, i, 8000 sh. issued	1 0 0	—	0 7 0... 0 1 0... Oct. 1876
10000	Tankerville, c, i, Balop	6 0 0	—	4 17 0... 0 8 0... Dec. 1876
6000	Tincroft, c, i, Pool, Illogan	9 0 0	—	50 8 6... 0 8 0... May 1877
16000	Van, c, i, Llanidloes	4 5 0	—	22 15 6... 0 12 0... Jan. 1878
3300	W. Chiverton, c, i, Perranabuloe	12 10 0	—	55 0 0... 0 10 0... Jan. 1877
1783	West Poldice, c, i, Day	10 0 0	—	1 19 0... 0 4 0... July 1876
612	West Tolgus, c, i, Redruth	10 10 0	—	25 5 0... 0 10 0... Dec. 1877
3048	West Wheel Franks, c, i, Illogan	28 13 0	—	3 12 6... 0 5 0... Oct. 1872
13000	West Wheel Franks, c, i, Montgomery	3 0 0	—	0 12 0... 0 3 0... Nov. 1877
1024	Wh. Eliza Consols, c, i, St. Austell	10 0 0	—	15 10 0... 0 10 0... Oct. 1877
3048	Wheel Jane, c, i, Kea	2 13 10	—	11 19 0... 0 5 0... July 1876
4296	Wheel Kitty, c, i, St. Agnes	5 4 6	—	0 8 0... 0 2 6... Dec. 1874
24000	Wh. Newton, c, c, s, i, Calstock	1 0 0	—	0 8 0... 0 4 0... Nov. 1876
80	Wh. Owsley, c, i, St. Just	65 6 0	—	522 10 0... 0 4 0... Oct. 1872
6000	Wh. Prussia, c, i, Redruth	0 5 0	—	0 4 0... 0 1 0... July 1872
95000	Wicklow, c, i, c, i, Wicklow	2 10 0	—	52 9 0... 0 2 6... Mar. 1872
10000	Wyo Valley, c, i, Montgomery	3 0 0	—	0 10 6... 0 4 0... Oct. 1876

## FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk. Clos. pr.	Total divs. For sh. Last pd.
24500	Alamillos, c, i, Spain	2 0 0	—	1 18 3... 0 1 0... Oct. 1877
80000	Almaden and Tinto Consols, c, i	1 0 0	—	0 6 3... 0 1 0... May 1876
30000	Australian, c, i, South Australia	7 7 6	—	0 19 6... 0 1 0... July 1877
10000	Battle Mountain, c, i, 6240 part pd.	5 0 0	—	0 10 0... 0 10 0... Nov. 1872
15000	Birdseye Creek, c, i, California	4 0 0	—	0 14 0... 0 2 6... June 1876
12820	Burra Burra, c, i, So. Australia	8 0 0	—	70 0 0... 0 10 0... Oct. 1872
30000	Cape Copper Mining, c, i, So. Africa	7 0 0	—	29 12 6... 0 17 6... Dec. 1877
84438	Cedar Creek, c, i, California	8 0 0	—	0 8 0... 0 2 6... Aug. 1878
80000	Cosena Sul., c, i, Romagna, Italy	10 0 0	—	0 10 0... 0 3 0... Aug. 1877
15000	Chicago, c, i, U.S.	10 0 0	—	2 8 0... 0 4 0... Nov. 1876
65000	Colorado United, c, i, Colorado	10 0 0	—	0 2 0... 0 4 0... Nov. 1876
10000	Copiapu, c, i, Chile (200 shares)	16 16 0	—	7 11 5... 0 4 0... Jan. 1878
100000	Don Pedro North del Rey	0 16 0	—	2 5 9... 0 2 0... May 1877
23500	Eberhardt & Aurora, c, i, Nevada	10 0 0	—	1 8 0... 0 3 0... Dec. 1877
70000	English Australian, c, i, So. Aust.	2 10 0	—	2 18 9... 0 1 0... Mar. 1877
80000	Flagstaff, c, i, Utah	10 0 0	—	0 2 0... 0 5 0... July 1878
25000	Fortuna, c, i, Spain	2 0 0	—	6 14 10... 0 8 0... Oct. 1877
50000	Frontino & Bolivia, c, i, New Gran.	2 0 0	—	0 1 0... 0 4 0... Jan. 1877
30000	Gold Run, c, i, Hyd.	1 0 0	—	0 2 4... 0 1 0... June 1876
68000	Kapunda Mining Co. Australia	1 3 0	—	0 2 4... 0 6 6... July 1873
20000	Last Chance, c, i, Utah	5 0 0	—	0 14 0... 0 2 0... June 1877
15000	Linares, c, i, Spain	3 0 0	—	17 3 10... 0 2 0... Oct. 1877
65000	London and California, c, i	3 0 0	—	0 1 0... 0 1 0... July 1876
7887	Lusitania, Portugal (25 sh.)	3 10 0	—	1 11 6... 0 1 0... July 1876
5000	Mamm. Copperopolis of Utah, c, i	10 0 0	—	0 6 0... 0 6 0... Mar. 1873
5000	Mountain Chief, c, i, Utah	10 0 0	—	0 4 0... 0 4 0... Jan. 1872
10000	Pontgibaud, c, i, France	20 0 0	—	25 8 0... 1 1 0... Nov. 1873
60000	Port Phillip, c, i, Clunes	1 0 0	—	1 9 0... 0 1 0... Sept. 1877
64000	Richmond Consols, c, i, Nevada	5 0 0	—	3 15 6... 0 7 6... Nov. 1877
40000	Santa Barbara, c, i, Brazil	0 10 0	—	0 3 9... 0 1 3... May 1877
120000	Scottish Australian Mining Co. (1)	1 0 0	—	15 per cent. ... 1 3... May 1877
60000	Scottish Austral. Mining Co. (2)	0 7 6	—	15 per cent. ... 1 3... May 1877
112000	Sierra Butte, c, i, California	2 0 0	—	1 18 0... 0 2 0... Oct. 1877
60000	South Australia, c, i, Nevada	5 0 0	—	0 14 2... 0 2 0... Nov. 1877
225000	St. John del Rey (25 cents & multiples dealt in)	300 310	—	3/4 year ... 30 p. cent. for Dec. 1876
20000	Tollima, c, i, So. America	5 0 0	—	0 11 6... 0 6 6... May 1874
25000	Victoria (London), c, i, Australia	1 0 0	—	0 11 10... 0 10 0... Aug. 1876
15000	Western Andes, c, i, New Granada	5 0 0	—	0 12 0... 0 12 0... July 1876
21000	W. Prussian (5000 pref. sh. 101. pd)	10 0 0	—	1 8 0... 0 4 0... Jan. 1878

## NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last wk. Clos. pr.	Last Call.
5000	Anguilla Phosphate, West Indies (4000 issued)	10 0 0	—	...Fully pd.
12000	Argentine, c, i, Argentina Republic	5 0 0	—	...Fully pd.
2000	Belavista, c, i, Peru (410 shares)	10 0 0	—	...Fully pd.
30000	Blue Tent, c, i, California	10 0 0	—	...Fully pd.
49928	Chontales, c, i, Nicaragua	5 0 0	—	...Fully pd.
16000	Condes de Ollivi, c, i	2 0 0	—	...Fully pd.
20000	English Australian, c, i, Victoria	5 0 0	—	...Fully pd.
80000	Excelsior Hydraulic Gold Washing Co. California	6 0 0	—	...Fully pd.
100000	Exchequer, c, i, California	1 0 0	—	...Dec. 1871
40000	Holcombe Valley, c, i, California	1 0 0	—	...Fully pd.
8008	Hornachos, c, i, Spain	10 0 0	—	...Fully pd.
12000	Huitfall, c, i, Orebro, Sweden	5 0 0	—	...Fully pd.
12000	Imperial Brazilian Collieries, c, i, Brazil	10 0 0	—	...Fully pd.
90000	J. L. & Co., c, i, California	5 0 0	—	...Fully pd.
60000	Javali, c, i, Nicaragua	2 0 0	—	...Fully pd.
3500	La Manche, c, i, Newfoundland	10 0 0	—	...Fully pd.
12000	Lancaster, c, i, c, i, Vicosya, Spain (25 shares)	1 15 0	—	...Fully pd.
75000	Malabar, c, i, Colombia (25 shares)	1 0 0	—	...Fully pd.
40000	Malpas, c, i, Colombia (7400 pref. shares, fully paid)	1 0 0	—	...Fully pd.
10000	Menzenberg, c, i, Konner, Germany	8 0 0	—	...Fully pd.
4588	New Bensberg, c, i, Germany	5 0 0	—	...Fully pd.
90000	New Quebrada, c, i, Venezuela	5 0 0	—	...Nov. 1876
2000	New Zealand Kapanga, c, i, Coromandel	5 0 0	—	...Fully pd.
20000	Oregon, c, i, Oregon, U.S. (preference shares)	5 0 0	—	...Fully pd.
30000	Panulillo, c, i, Chile (20000 debentures)	4 0 0	—	...Fully pd.
50000	Pastorena United, c, i, Italy	3 0 0	—	...Fully pd.
50000	Providencia and New Rosario, c, i, Mexico	1 0 0	—	...Fully pd.
60000	Rica, c, i, Colombia (4000 issued)	1 0 0	—	...Fully pd.
23,151,000	Rio Tinto, c, i, Huelva, Spain	Stock	—	...Fully pd.
100000	Rosa Grande, c, i, Brazil (21 shares)	0 10 0	—	...Fully pd.
30000	Russia Copper, Orenburg and Ufa	10 0 0	—	...July 1873
25000	San Pedro, c, i, Chile	10 0 0	—	...Fully pd.
10000	Silver Pluma, c, i, Colorado	2 0 0	—	...Fully pd.
20000	Tecoma, c, i, Utah	1 0 0	—	...Fully pd.
20000	Thornhill Reef, c, i, Australia	10 0 0	—	...Fully pd.
45174	United Mexican, c, i, Mexico	1 0 0	—	...Fully pd.
14000	Utah, c, i, Utah	28 15 3	—	...May 1876
75000	York Peninsula, c, i, South Australia	5 0 0	—	...Fully pd.
40000	York Peninsula, c, i, South Australia Preference	1 0 0	—	...Fully pd.

§ Have made calls since last dividend was paid.

## FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

Shares.	Mines.	Paid.	Last wk. Clos. pr.	Last Call.
Argentine, 1868, 6 per cent.	67 69	—	—	—
Brazilian, 1868, 6 per cent.	23 25	—	—	—
Chilian, 1868, 7 per cent.	87 89	—	—	—
City of Providence, 5 p.c. coupon bonds	101 103	—	—	—
Do., 5 p.c. coupon bonds	97 99	—	—	—
Do., 5 p.c. coupon bonds	31 33	—	—	—
Do., 5 p.c. coupon bonds	68 69	—	—	—
Do., 5 p.c. coupon bonds	69 71	—	—	—
Do., 5 p.c. coupon bonds	43 45	—	—	—
Foreign and Col. Gov. Trust, 5 p.c.	65 70	—	—	—
Do., 5 p.c. coupon bonds	50 55	—	—	—
Do., 5 p.c. coupon bonds	50 55	—	—	—
Do., 5 p.c. coupon bonds	49 47	—	—	—
Do., 5 p.c. coupon bonds	44 49	—	—	—
Do., 5 p.c. coupon bonds	11 12	—	—	—
Do., 5 p.c. coupon bonds	10 10 1/2	—	—	—
Russian, 5 p.c. coupon bonds	93 95	—	—	—
Spanish, Quicksilver Mort., 5 p.c.	93 95	—	—	—
United States Mort., 5 p.c.	93 95	—	—	—

## NON-DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk. Clos. pr.
40000	Aberdeen, c, i, Llanidloes*	1 0 0	—
10000	Aberystwith, c, i, Cardigan	5 0 0	—
80	Albion, c, i, Cornwall	100 0 0	100
7800	Alvig & Burg, c, i, St. Aust.	3 0 0	3 2 1/2
18000	Ambrose Lake, c, i, c, Liskeard	1 18 6	—
12000	Assheton, c, i, Carnarvonshire	5 0 0	1 1/2
50000	Ballynemmisk, c, c, Schull	2 0 0	—
12000	Bedford Unit, c, i, Tavistock (12 sh.)	—	2s. 4s.
28000	Belstone, c, c, Devon (27,000 fy. pd.)	1 0 0	—
15000	Blaken United, c, i, Cardigan	1 0 0	—
2857	Bine Hills, c, i, St. Agnes	3 10 0	—
20000	Bodidris, c, i, c, Denbighshire	1 0 0	1 1 1/2
1000	Bollihow Vale, c, i, Durham	5 0 0	—
200	Botallack, c, i, St. Just	121 5 0	—
2000	Bowden Hill, c, i, m	1 0 0	—
6000	Bradwell Moss Rake	1 0 0	1 1/2
50000	Calbrook Fells, c, i, Cumberland	2 0 0	—
50000	Cambrian, c, i, c, Cardiganshire	2 0 0	3 2 1/2
3348	Cargoll, c, i, Newlyn	619 0 0	3 2 1/2
10000	Caron, c, i, Cardigan	2 0 0	2 1/2
20000	Central Foxdale, c, i, of Man (21 sh.)	1 5 0	—
10000	Central Van, c, i, c, Llanidloes	5 0 0	—
128	Clemencia, c, i, Llanrwst	20 0 0	—
7500	Combellack, c, i, Wendron	2 0 0	—
6000	Combmartin, c, i, North Devon	0 7 0	3/4 3/4 3/4
24 100	Court Grange, s, i, (6000 sh. 10s. pd.)	1 0 0	1 1/4 1 1/4
5000	Cwm Dwyfor, c, c, s, i, Carnarvonshire	0 18 0	—
500	Cwm Llanaroch, c, i, Cardigan	2 0 0	—
5000	Cwmystwith (New) [S. shares]	4 0 0	—
512	D'Eresby Mountain, c, i, c, Llanrwst.	20 0 0	40 50 60
1000	Denbighshire Consolidated, i*	3 0 0	1 7/8 7/8 1
12000	Derwent, c, i, Durham	4 0 0	2 1 1/2 2
1000	Dubby Syke, c, i, Durham	0 12 6	3/4 3/4 3/4
6144	East Cardigan, c, St. Cleer	216 6 0	1 1/2 3/4 1
1000	East Chiverton, c, i, Perranrathol	617 0 0	3 2 3
3000	East Craven Moor, c, i, Pateley Bdge	10 0 0	10 1/2 10 1/2 10 1/2
400	East Goginan, c, i, Cardigan	2 0 0	—
1800	East Van, c, i, Llanidloes	8 0 0	3 1/2 2 1/2 3
1722	East Wh. Lovell, c, Helston	9 11 0	1 3/4 3/4 1
1000	Elgar, c, i, Cardiganshire	1 0 0	1 1/4 1 1/4 1 1/4
8000	Freonvella, c, i, Mont. [4000 sh. fy. pd.]	1 0 0	—
3950	Gawton, c, i, Tavistock	4 5 6	4s. 2s. 4s.
2000	Glan Clwyd, c, i, Gwyddelwern	1 0 0	—
4000	Glenroy, c, i, s, i, Isle of Man	4 5 0	1 1/2 3/4 1 1/4
1000	Glyn, c, i, Llanidloes	2 0 0	3/4 3/4 3/4
2000	Goginan, c, i, Level Newydd, Card., i	2 10 0	—
100000	Gold, c, i, Merionethshire	1 0 0	—
10000	Goreu, c, i, c, i, Carnarthen	1 0 0	1 1/4 1 1/4 1 1/4
1000	Gr. E. Foxdale, c, i, of Man (12 sh)	0 18 0	—
2000	Great Holway, c, i, Flintshire	5 0 0	5 1/2 5 1/2 5 1/2
9500	Great Pant, c, i, Pydew, c, i, Holywell	2 0 0	—
6000	Gt. Wheel Eleanor, c, i, North Bovey	1 0 0	—
3000	Grosvenor, c, i, Holywell (£1 sh.)	0 15 0	—
10000	Harehow Gill, c, i, Durham (£1 sh.)	0 5 0	—
6400	Harwood, c, i, Durham	0 15 0	1 1
8000	Hingston Down, c, i, Caletstock	0 5 0	6s. 3 1/2 3 1/2
5000	Hush Elsteddoff Miners, c, i	2 0 0	—
200	Islay, c, i, Scotland	28 0 0	—
2500	Killalee, c, i, Tipperary	1 0 0	—
4000	Kilfrith, c, i, Chacewater	2 1 0	3/4 3/4 3/4
5000	Kingston Con., c, i, Stoke Climsland.	1 0 0	—
	Ditto, preference	1 0 0	1 1/4 1 1/4 1 1/4
2000	Ladywell, c, i, Salop	2 10 0	1 1/2 3/4 1 1/4
2000	Ditto, 10 per cent. pref., 12 each.	0 10 0	3/4 3/4 3/4
2800	Levant, c, i, St. Just	9 18 6	—
5000	Llanrhadril, c, i, Montgomery	2 0 0	—
5000	Livingstone Consols, c, St. Agnes	0 10 0	1 3/4 1 1/4
5000	Llanrhaeadr, c, i, Carnarvon	2 0 0	—
5000	Llwyn Telfy, c, i, Cardigan	1 0 0	—
4000	Meldyn Moor, c, i, Wendron	1 17 4	—
1000	Melyndaf, c, i, Cardigan*	3 0 0	3/4 3/4 3/4
1000	Monydd Gorrdu, c, i, Cardigan (Red.)	5 0 0	—
5000	Nant-y-Ronen, c, i, Cardigan*	1 0 0	—
5000	Nascent Copper*	1 0 0	—
4525	New Bronlloyd, c, i, Cardigan (S. sh.)	3 10 0	2 1/2 2 2 1/2
8000	New Consols, c, i, (in Liquidation)	8 0 0	—
8000	New Dolcoath, c, i, c, Camborne	8 0 0	1 1/2 1 1/2 1 1/2
8000	New East Foxdale, c, i, Isle of Man.	0 16 0	—
4000	New Power Consols, c, St. Blazey*	3 0 0	2 1 1/2 2
1492	New Hendra, c, i, Breage	3 9 0	—
2000	New South Merilyn, c, i, Flint*	2 10 0	1 1 1/2 1
3500	New Tincoft, c, i, Lelant	6 0 0	3 2 1/2 3
5000	New Wheel Emma, c, i, Buckfastleigh	2 0 0	—
4000	North Cornwall, c, i, Cornwall	5 0 0	5 1/2 5 1/2 5 1/2
4000	North Lacey, c, i, Isle of Man	2 0 0	8s. 4s. 6s.
2000	North Levant, c, i, St. Just	12 8 0	1 3/4 1 1/4 1
4000	North Prince Patrick, c, i, Holywell.	1 0 0	—
1896	North Trekebric, c, St. Agnes	4 7 10	—
4000	North Wheel Tewan, c, i, c, Illogan	1 19 6	—
4000	Oola Hills, c, i, Limerick	5 0 0	—
4000	Pandora, c, i, Carnarvon	2 0 0	1 3/4 1
4000	Panty Mwyn, c, i, Mold (8794 iss.)	2 0 0	—
928	Parys Mountain, c, c, Anglesea	3 0 0	3/4 3/4 3/4
4000	Pateley Bridge, c, i, Yorkshire	5 0 0	3 1/2 3 1/2 3 1/2
4000	Patrimmon, c, i, Llanidloes*	3 0 0	6s. 4s. 6s.
648	Polruan, c, i, Breage	21 0 0	—
4000	Port Nig, c, i, c, Carnarvonshire	5 0 0	3/4 3/4 3/4
1000	Prideaux Wood, c, i, Llaniverry	5 0 0	—
182	Princes of Wales, c, c, Calstock	2 4 0	3/4 3/4 3/4
4000	Relistian Consols, c, Gwinear	0 10 0	3/4 3/4 3/4
4000	Rookhope, c, i, Durham	1 10 0	1 3/4 1 1/4
4000	Silvercross, c, c, i, Marazion	1 0 0	—
4000	Snobrook, c, i, Montgomery	5 0 0	—
4000	Swymystwith, c, i, Cardiganshire.	2 0 0	4 3/4 4
4000	South Darwen, c, i, c, Redruth	1 10 0	1 1/2 1 1/2 1 1/2
612	South Dolcoath, c, i, c, Redruth	0 20 0	1 1 1/2 1 1/2
400	So. Molton Cons., c, i, No. Devon	0 20 0	1 3/4 1
4000	South Roman Gravel, c, i	1 10 0	—
4000	South Rozeat, c, c, i, Camborne	6 10 0	5 3/4 5 3/4 5
4000	South Tolarca, c, c, i, Camborne	2 11 8	3 4 3
927	South Wheel Crofty, c, i, Illogan	39 10 10	13 9 1/2 10 1/2
4000	South Wh. Frances, c, i, Illogan	7 12 4	3 2 1/2 3
4000	St. Lawrence, c, i, c, i, Flintshire*	2 0 0	—
4000	St. Patrick, c, i, Halkin, Holywell*	1 0 0	1 1/4 1 1/4 1 1/4
4000	Flisces, c, c, i, Derby (12,000 called)	1 0 0	—
4000	Sunnyside, c, i, Durham	2 0 0	2 1/2 2 2 1/2
4000	Talybont, c, i, Cardiganshire	1 0 0	1 1/4 1 1/4 1 1/4
4000	Teesdale, c, i, Durham	1 0 0	3/4 3/4 3/4
4000	Teign Valley, c, i, c, i, Bridford	1 0 0	—
4000	Temple, c, i, Cardigan*	1 0 0	2 1/2 2 1/2 2 1/2
4000	Tolgus Consols, c, c, i, Redruth	5 0 0	5 1/2 5 1/2 5 1/2
4000	Trebeigh Consols, c, St. Ive	0 9 6	3 3/4 3 3/4 3
4000	Treiligh Wood, c, i, Redruth	6 10 0	—
4000	Trevelyan, c, i, c, i, Crantock	2 0 0	—
4000	Truro, c, i, c, i, c, i, Flintshire	10 0 0	—
4000	Tyn-y-Fron, c, i, Cardigan	1 0 0	2 1 1/2 2
4000	Van Consols, c, i, Llanidloes*	2 10 0	3/4 3/4 3/4
4000	Vaughan, c, i, Cardiganshire	10 0 0	—
4000	West Assheton, c, i, Carnarvon	1 0 0	1 3/4 1
4000	West Basset, c, i, Illogan	6 8 8	3 1/2 3 1/2 3 1/2
4000	West Combmartin, c, i, North Devon	1 0 0	3/4 3/4 3/4
4000	Ditto	0 20 0	3 1/2 3 1/2 3 1/2
4000	W. Craven Moor, c, i, Pateley Bridge	10 0 0	10 0 10
4000	West Goginan, c, i, Cardiganshire	2 0 0	1 1/2 1 1/2 1 1/2
4000	West Liangynog, c, i, c, i, Montgomery	2 0 0	3/4 3/4 3/4
4000	West Mary Ann, c, i, Menheniot	0 36 1	1 3/4 1
4000	West Milver, c, i, Flint	1 0 0	—
4000	West of England Granite Company	2 0 0	2 2 2
4000	West of England Portland, c, i, Yorkshire	1 0 0	2 1/2 2 1/2 2 1/2
4000	West Rozeat, c, c, i, c, i, Camborne	3 0 0	17 1/2 15 17 1/2
4000	West Tankerville, c, i, Salop	3 0 0	1 3/4 3/4 3/4
4000	Ditto, 15 per cent. pref.	3 0 0	1 3/4 3/4 3/4
4000	West Wheel Peewer, c, i, Redruth	0 10 0	6 1/2 6 1/2 6 1/2
4000	West Wheel Seton, c, i, Camborne	47 0 0	8 12 14
4000	Wheel Azar, c, i, Illogan	12 0 0	4 1/2 4 1/2 4 1/2
12	Wheel Basset, c, i, Illogan	24 2 6	12 10 12
335	Wheel Castles, c, St. Agnes	2 0 0	—
335	Wheel Comb, c, c, i, Gwennap	1 5 0	—
4000	Wheel Credor, c, c, i, Tavistock	1 5 0	—
79	Wheel Grenville, c, i, Camborne	4 1 0	1 3/4 3/4 1
4000	Wh. Mary Hutchings, c, i, Plymouth	1 6 8	3 2 1/2 3
4000	Wheel Peewer, c, i, Redruth	7 11 0	6 1/2 6 1/2 6 1/2
4000	Wheel Russell, c, c, i, Tavistock	2 1 6	—
4000	White Clay, c, c, i, Redruth	13 5 6	1 1/4 1 1/4 1 1/4
24	White Cliff, c, i, Llanrwst	5 0 0	—